

## 2.

The Tipulidae (Order Diptera) of Rancho Grande,  
North-central Venezuela.<sup>1</sup>

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(Text-figures 1-39).

[This is one of a series of papers resulting from the 45th, 46th and 47th Expeditions of the Department of Tropical Research of the New York Zoological Society, made during 1945, 1946 and 1948 under the direction of Dr. William Beebe, with headquarters at Rancho Grande in the National Park of Aragua, Venezuela. The expeditions were made possible through the generous cooperation of the National Government of Venezuela and of the Creole Petroleum Corporation.

[The characteristics of the research area are in brief as follows: Rancho Grande is located in north-central Venezuela (10° 21' N. Lat., 67° 41' W. Long.), 80 kilometers west of Caracas, at an elevation of 1,100 meters in the undisturbed montane rain forest which covers this part of the Caribbean range of the Andes. Adjacent ecological zones include seasonal forest, savanna, thorn woodland, cactus scrub, the freshwater lake of Valencia and various marine littoral zones. The Rancho Grande area is generally subtropical, being uniformly cool and damp throughout the year because of the prevalence of the mountain cloud cap. The dry season extends from January into April. The average humidity during the expeditions, including parts of both wet and dry seasons, was 92.4%; the average temperature during the same period was 18° C; the average annual rainfall over a five-year period was 174 cm. The flora is marked by an abundance of mosses, ferns and epiphytes of many kinds, as well as a few gigantic trees. For further details, see Beebe and Crane, *Zoologica*, Vol. 32, No. 5, 1947. Unless otherwise stated, the specimens discussed in the present paper were taken in the montane cloud forest zone, within a radius of one kilometer of Rancho Grande.]

I am very greatly indebted to Dr. William Beebe and Mr. Henry Fleming, of the Department of Tropical Research of the New York Zoological Society, for the opportunity of studying a large and important series of crane-flies taken in 1945, 1946 and 1948 at and near Rancho Grande. A most interesting account of the region is provided by Dr. Beebe's recently published book, *High Jungle*.<sup>2</sup> The physiography and ecology of the

area have been detailed in two important papers by Beebe and Crane.<sup>3</sup>

The Tipulidae of Venezuela are still very insufficiently known despite somewhat intensive collecting and study of the group during the past several years. The writer has published a total of nine reports that summarize what is known of this fauna to the year 1948. These papers bear the general title of "New or little-known Tipulidae from Venezuela (Diptera)," and were published in the *Boletín de Entomología Venezolana*, Caracas, between 1943 and 1947, as follows:

Part I—Vol. 2: 17-26; 1943. Part II—Vol. 2: 125-144, 5 figs.; 1943. Part III—Vol. 3: 35-50, 8 figs.; 1944. Part IV—Vol. 3: 143-160, 5 figs.; 1944. Part V—Vol. 3: 171-192, 5 figs.; 1944. Part VI—Vol. 4: 59-80, 6 figs.; 1945. Part VII—Vol. 6: 37-54, 5 figs.; 1947. Part VIII—Vol. 6: 55-74, 14 figs.; 1947. Part IX—Vol. 6: 74-106, 13 figs.; 1947.

The above-cited papers record a total of 180 species of Tipulidae from Venezuela, including several from Rancho Grande that have been incorporated in the present report to assure completeness. Various additional species, not included in the paper, are from other stations in Aragua, specifically Choroní. It may be expected that several of these latter species will be found at Rancho Grande and that many further novelties may be discovered as a result of continued collecting. Despite the earlier work done at Rancho Grande, it is of interest to note that no fewer than 24 species are characterized as new at this time out of a total of 76 reported from Rancho Grande and vicinity.

I wish to express my sincere thanks to Dr. Beebe, Mr. Fleming, and others who have cooperated actively in securing the Tipulidae herein considered. I am particularly indebted to Dr. Beebe for permitting me to retain the specimens upon which this report is based, including the types of the novelties.

<sup>3</sup> Beebe, William, & Jocelyn Crane.

1947. Ecology of Rancho Grande, a subtropical cloud forest in northern Venezuela. *Zoologica*, 32: 43-60, 5 pls., 10 text-figures; bibliography.

1948. Ecología de Rancho Grande, una selva nublada subtropical en el Norte de Venezuela. *Bol. Soc. Venez. Cien. Nat.*, 11: 217-258, 5 pls., 10 text-figures.

<sup>1</sup> Contribution No. 870, Department of Tropical Research, New York Zoological Society.

<sup>2</sup> Beebe, William. *High Jungle*, 379 pages (Duell, Sloan & Pearce).

## TIPULINI.

*Brachyremna* Osten Sacken.

1. *Brachyremna dispellens* (Walker, 1860).  
*Tipula dispellens* Walker; *Trans. Ent. Soc. London*, (n.s.) 5: 334; 1860.

Rancho Grande, August 27, 1944, collected by Lichy. A species having an unusually wide distribution in the New World, ranging from the United States (New Jersey, Indiana and Illinois), through Mexico and Central America to Brazil. It is known from Trinidad but is lacking elsewhere in the West Indian islands, in the Greater Antilles being replaced by *Brachyremna unicolor* Osten Sacken.

2. *Brachyremna similis* Williston, 1900.

*Brachyremna similis* Williston; *Biol. Centr.-Americana*, Diptera, I, Supplement: 229; 1900.

Rancho Grande, May 20, 1946. Elsewhere in Venezuela from Cano del Tigre, Merida, September, 1943 (Anduze). Type from Teapa, Tabasco, Mexico, collected by H. H. Smith. Known from Mexico, Nicaragua, Costa Rica, Panama and Venezuela.

3. *Brachyremna triangularis* Alexander, 1945.

*Brachyremna arcuaria triangularis* Alexander; *Bol. Ent. Venezolana*, 4: 60-61; 1945.

Rancho Grande, May 11-July 20, 1946; one pair taken in coitu while flying. Mt. Limon, 1500 meters, May 23, 1948. Known only from this vicinity, where the type was taken at Rancho Grande on August 27, 1944, by Lichy. Most nearly allied to *Brachyremna arcuaria* Alexander, of Amazonian Ecuador.

*Tanyremna* Osten Sacken.

4. *Tanyremna (Tanyremna) kadeni* Alexander, 1941.

*Tanyremna (Tanyremna) kadeni* Alexander; *Ann. Ent. Soc. America*, 34: 232-233; 1941.

Rancho Grande, June 24, 1945. The type was from Venezuela, without more exact geographical data, collected in August, 1857, by Carl Gotthelf Kaden. Also known from Rio Chacaito, Miranda, July 16, 1939 (Vivas-Berthier). Still known only from Venezuela.

*Holorusia* Loew.

5. *Holorusia (Holorusia) plagifera* Alexander, 1943.

*Holorusia (Holorusia) plagifera* Alexander; *Bol. Ent. Venezolana*, 2: 125-127; 1943.

Rancho Grande, March 27, 1946, ♀♀; June 22, 1946, ♂; July 18, 1946, ♂; May 3, 1948, ♂. The type was taken here on June 24, 1944, by Lichy. Still known only from the type locality.

*Nephrotoma* Meigen.

6. *Nephrotoma medioligula* Alexander, 1945.

*Nephrotoma medioligula* Alexander; *Bol. Ent. Venezolana*, 4: 69, fig. 2; 1945.

Rancho Grande, May 17, 1948, ♀; May 24, 1948, ♂; July 17, 1948, ♀. The type was taken here on August 27, 1944, by Lichy. Still known only from the type locality.

*Tipula* Linnaeus.

7. *Tipula (Bellardina) theobromina* Edwards, 1920.

*Tipula theobromina* Edwards; *Mem. Mus. Paris*, Arc de Méridien Equatorial, Dipteres Nématocères, 10 (2): 159-160, fig. 21 (ovipositor); 1920.

Rancho Grande, June 18, 1946, ♂. Now known from Venezuela, Ecuador, Peru and Bolivia. The type, from Ecuador, had no distinct pale ring on the femora but regional material shows such an annulus that varies in width and distinctness in different specimens. Because of the rather constant structure of the male hypopygium, I am referring all such specimens to the present species. The identity of *Tipula obliquefasciata* Macquart, 1846, still remains in question and may well be found to pertain to the present fly.

8. *Tipula (Microtipula) lichyana* Alexander, 1945.

*Tipula (Microtipula) lichyana* Alexander; *Bol. Ent. Venezolana*, 4: 71, figs. 3, 4; 1945.

Rancho Grande, May 23-June 14, 1948, migrant. The type was from here, taken May-August, 1944, by Lichy, for whom the species was named. Still known only from the type locality.

9. *Tipula (Microtipula) regressa*, sp. n.

Mesonotum obscure brownish-yellow, vaguely patterned with pale brown; antennae with flagellum black, the extreme tips of the more proximal segments restrictedly pale; wings with a weak brownish tinge, cells *C* and *Sc*, with the stigma, darker brown; male hypopygium with caudal margin of ninth tergite unequally trilobed, the lateral lobes slender, the median lobe low and broad; eighth sternite yellow, sheathing, narrowed to the broadly obtuse tip.

Male: Length about 11 mm.; wing 12 mm.; antenna about 5 mm.

Frontal prolongation of head yellow; nasus short and stout, distinct; palpi yellowish testaceous. Antennae (male) relatively long, as shown by the measurements; scape, pedicel and base of first flagellar segment yellow; flagellum black, the extreme tips of the more proximal segments restrictedly pale; flagellar segments very weakly incised, much longer than the verticils. Head with the front whitened, the posterior portions brownish-yellow, the center of the posterior vertex still darker brown; sides of vertex with numerous

black setae; vertical tubercle lacking or barely indicated.

Pronotum light brown, paling to yellow on sides. Mesonotal praescutum obscure brownish-yellow, vaguely patterned with pale brown, the markings irregular and scarcely apparent; scutum brownish-yellow; posterior sclerites of notum somewhat clearer yellow. Pleura and pleurotergite clear light yellow. Halteres with stem yellow, knob infuscated. Legs with the coxae and trochanters pale yellow; femora brownish-yellow to pale brown, the bases clear yellow; tibiae and tarsi slightly darker brown; claws (male) toothed. Wings with a weak brownish tinge, cells *C* and *Sc*, with the stigma, darker brown; prearcular field relatively pale; restricted pale areas before stigma and across cell 1st *M*<sub>2</sub>; veins brown. No macrotrichia on squama or in wing cell's. Venation: *Rs* gently arcuated, about one-half longer than *R*<sub>2+3</sub>; vein *R*<sub>1+2</sub> entire; petiole of cell *M*<sub>1</sub> less than two times *m*; *m-cu* at near three-fourths the length of *M*<sub>3+4</sub>; cell 2nd *A* of moderate width.

Abdomen with the basal segments obscure yellow, the third and succeeding segments chiefly infuscated, the caudal margins restrictedly pale; subterminal segments, including six, seven and base of eighth sternite dark brown to form a ring; hypopygium yellow. Male hypopygium (Text-fig. 1) with the ninth tergite, 9t, subequal in length and width; caudal margin unequally trilobed, including slender lateral lobes that are tipped with about four black spinous setae, and a low broad median lobe with more numerous setae; in the slide mount, these lobes are bent backward or cephalad, possibly not a natural condition; proctiger a slender pale lobe, curved and slightly enlarged at tip. Both dististyles blackened and sclerotized, shaped about as in figure *d*; beak of inner style slender, lower beak acute. Eighth sternite, 8s, yellow, sheathing, narrowed to the broadly obtuse tip, the outer part with pale inconspicuous setae. Appendage of ninth sternite, 9s, appearing as two pale elongate lobes or blades, at apex more expanded, the surface, and especially the margins, with numerous fimbriations.

Holotype, ♂, Rancho Grande, April 23, 1946 (Beebe-Fleming).

The most similar described species are *Tipula* (*Microtipula*) *inaequilobata* Alexander and *T. (M.) prolixisterna* Alexander, which differ particularly in the structure of the male hypopygia.

#### 10. *Tipula* (*Microtipula*) *paralenta*, sp. n.

General coloration of thorax pale brown, the praescutum with four scarcely differentiated more brownish-yellow stripes; antennae (male) elongate, flagellar segments beyond the first black; male hypopygium with the caudal border of tergite produced into a depressed-flattened median lobe, on either side of the apex of which with about a dozen blackened spinous setae; appendage of ninth

sternite appearing as two flattened divergent lobes, densely fimbriate.

Male: Length about 13.5-14 mm.; wing 13 mm.; antenna about 9.5 mm.

Frontal prolongation of head obscure yellow; nasus long and conspicuous; palpi elongate, yellow, the first segment and apex of the last a trifle more darkened. Antennae (male) elongate, as shown by the measurements; basal three segments yellow, succeeding segments black; flagellar segments elongate, very gently incised; longest verticils a little more than one-third the segments. Head brown; anterior vertex broad, about four times the diameter of the scape; orbital setae numerous, short and black, directed laterad.

Pronotum yellowish-brown. Mesonotal praescutum pale brown, with four scarcely differentiated more brownish-yellow stripes; posterior sclerites of notum more uniformly brown. Pleura and pleurotergite pale yellow, unpatterned. Halteres elongate, stem brown, knob a trifle darker. Legs with the coxae and trochanters pale yellow; femora brownish-yellow, tibiae and tarsi darker, brownish-black; claws (male) with a very small, acute tooth at near midlength. Wings with a weak brownish tinge; stigma oval, dark brown; cell *Sc* brownish-yellow; a scarcely indicated dark cloud over the anterior cord; veins dark brown. Venation: *Sc*<sub>1</sub> ending about opposite midlength of *Rs*, the latter subequal in length to *m-cu*; *R*<sub>1+2</sub> preserved; petiole of cell *M*<sub>1</sub> a little longer than *m*; basal section of *M*<sub>4</sub> relatively long, perpendicular; cell 2nd *A* moderately wide.

Abdominal tergites brown, the subterminal ones darker to form a more or less distinct ring; remaining sternites and the hypopygium chiefly yellow. Male hypopygium with the tergite subequal in length and breadth, the caudal margin gently concave on the central portion, very unequally trilobed; lateral lobes very slender, each tipped with one or two strong spinous setae; median lobe broad, the apex slightly produced, on either side with about a dozen similar blackened spinous setae, the actual apex glabrous. Proctiger without blackened points. Basistyle with a blackened lobe on mesal face near cephalic end. Outer dististyle a flattened lobe, narrowed at base, the tip obtuse, the surface with strong scattered setae. Inner dististyle with the beak flattened, its tip obtuse; lower beak extended into an acute point. Eighth sternite relatively short, not sheathing. Appendage of ninth sternite appearing as two separate short flattened lobes, expanded outwardly, the apex of each subtruncate; outer surface and margin with very abundant elongate fimbriations.

Holotype, ♂, La Suiza, Turrialba, Costa Rica, May, 1919 (Pablo Schild); Alexander Collection through A. L. Melander. Paratype, ♂, Mount Limon, Aragua, Venezuela, 1500 meters, May 23, 1948; (Beebe-Fleming).

The most similar of the described species

is *Tipula (Microtipula) neolenta* Alexander, 1945 (*lenta* Alexander, preoccupied), which has the antennae much shorter and with all details of the male hypopygium quite distinct. In the general features of the ninth tergite, the fly also suggests species such as *T. (M.) heterodactyla* Alexander and *T. (M.) inaequilobata* Alexander, but all other details of structure of the hypopygium are distinct.

11. *Tipula (Eumicrotipula) aëdon* Alexander, 1947.

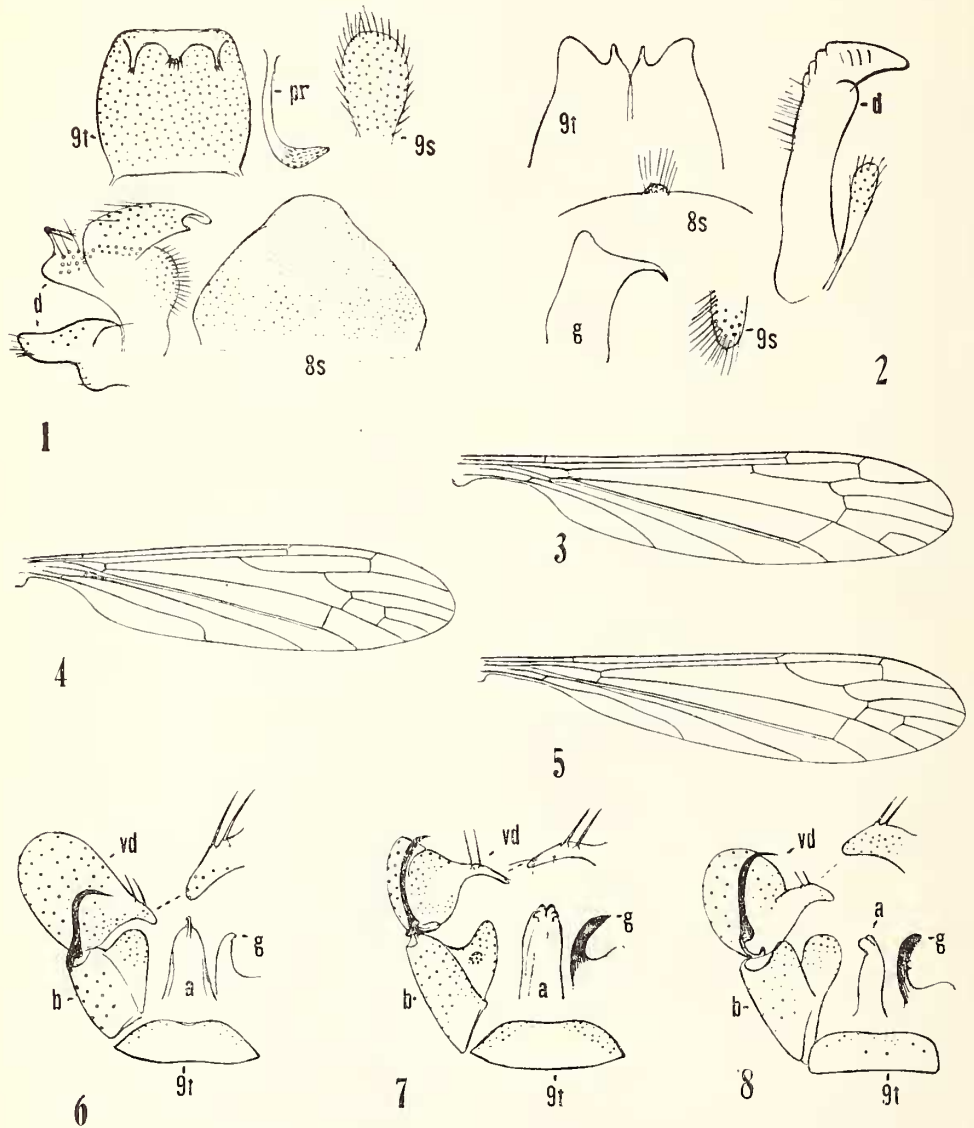
*Tipula (Eumicrotipula) aëdon* Alex-

ander; *Bol. Ent. Venezolana*, 6:80-82, fig. 3; 1947.

Rancho Grande, August 7, 1946. Type likewise from here, taken June 10, 1945, by Liehy. Still known only from the type locality.

12. *Tipula (Eumicrotipula) andromache*, sp. n.

Size small (wing, male, 9 mm.); antennae one-third the length of wing, scape and pedicel yellow, flagellum uniformly black; mesonotum yellowish-gray, the praescutum with a broad brown median stripe; lateral stripes paler, their anterior ends curved laterad into



TEXT-FIGS. 1-8. (Symbols: *a*, aedeagus; *b*, basistyle; *g*, gonapophysis; *t*, tergite; *vd*, ventral dististyle). 1—*Tipula (Microtipula) regressa*, sp. n.; male hypopygium, details. 2—*Tipula (Eumicrotipula) araguensis*, sp. n.; male hypopygium, details. 3—*Limonia (Limonia) thamyris*, sp. n.; venation. 4—*Limonia (Rhipidia) brevipetalia*, sp. n.; venation. 5—*Limonia (Dicranomyia) serratiloba*, sp. n.; venation. 6—*Limonia (Limonia) thamyris*, sp. n.; male hypopygium. 7—*Limonia (Rhipidia) brevipetalia*, sp. n.; male hypopygium. 8—*Limonia (Dicranomyia) serratiloba*, sp. n.; male hypopygium.

the margin; legs blackened, the femora with a narrow yellow subterminal ring; claws (male) small and simple; wings cream-yellow, marbled with pale brown, cell *Sc* with four darkened areas that are more extensive than the interspaces; distal ends of outer radial cells uniformly darkened; outer cells of wing with sparse macrotrichia; male hypopygium with the tergite transverse, the caudal margin truncate, on either side of midline with a small triangular point.

Male: Length about 8 mm.; wing 9 mm.; antenna about 3 mm.

Frontal prolongation of head above light yellow, infuscated on sides and beneath; nasus distinct; palpi with basal segment dark brown, segments two and three weakly darkened basally, paler at tips, terminal segment whitened. Antennae with scape and pedicel pale yellow, the flagellum abruptly and uniformly blackened; antennae of moderate length, as shown by the measurements; flagellar segments subcylindrical, much longer than their verticils. Head above pale yellowish brown, clearer yellow on the front and anterior vertex, the latter broad, its tubercle very low and inconspicuous.

Pronotum obscure yellow medially, weakly infuscated on sides. Mesonotal praescutum with the ground yellowish-gray, with a broad brown median stripe that is more expanded in front; lateral stripes somewhat paler but extensive, at anterior ends curved laterad to the margin; posterior sclerites of notum infuscated and pruinose, the scutellum more testaceous. Pleura chiefly gray, the propleura and pteropleurite more yellowed. Halteres with stem yellow, knob infuscated. Legs with the coxae grayish, the fore pair pale yellow; trochanters yellow; femora yellowed basally, passing into brown, the tips black, preceded by a yellow ring of about one-half their width; tibiae and tarsi brownish black; claws (male) small and simple. Wings cream-yellow, marbled with pale brown; stigma and subcostal interspaces darker brown; outer portion of cell *C* infuscated, paler nearer *h*; disk of wing chiefly pale, the darkened clouds being chiefly marginal in distribution, involving the distal one-third to one-half of the outer radial cells, this part of cell *R*<sub>3</sub> uniformly dark; further pale brown areas crossing the disk at near midlength and again just before outer end of cells *R* and *M*; a darkened cloud over fork of *M*<sub>1+2</sub>; cell 2nd *A* uniformly pale brown; veins brown, yellow in the subcostal interspaces which are smaller than the four darkened areas. Sparse macrotrichia in outer ends of cells *R*<sub>3</sub> to *M*<sub>4</sub>, inclusive, very restricted in cells *M*<sub>3</sub> and *M*<sub>4</sub>. Venation: Compared with *immerens*, *R*<sub>2+3</sub> shorter and more oblique; cell 1st *M*<sub>2</sub> smaller; *m-cu* on *M*<sub>4</sub> some distance beyond origin of latter; cell 2nd *A* narrower.

Abdomen with the basal tergite pale, the succeeding segments brown, the subterminal segments even darker; hypopygium weakly darkened. Male hypopygium with the tergite

transverse, the caudal margin truncate, on either side of midline with a small triangular point, the small area between broadly U-shaped. Outer dististyle small, with long setae. Inner dististyle with the beak elongate, pale, the shorter lower beak blackened, narrow; dorsal crest scarcely evident, weakly elevated, with pale setae and longitudinal furrows or impressed lines. Long slender dusky bladeliike rods from the genital chamber appear to represent gonapophyses.

Holotype, ♂, Rancho Grande, April 24, 1948, resting on tree trunk (Beebe-Fleming); No. 4873.

Allied to *Tipula* (*Eumicrotipula*) *immerens* Alexander, likewise from Venezuela, differing in the small size, uniformly darkened antennal flagellum, and in the pattern and degree of trichiation of the wings.

### 13. *Tipula* (*Eumicrotipula*) *araguensis*, sp. n.

Belongs to the *monilifera* group; mesonotum almost uniformly light cinnamon brown, the normal stripes not or poorly indicated; antennae (male) a little less than one-half the length of wing, the flagellar segments weakly bicolored; wings marbled; abdomen of male obscure orange or buffy, the basal segments very slightly patterned with darker, the subterminal segments deepening in color to form a darkened ring; male hypopygium with the tergal lobes produced into slender blades at their mesal angle; inner dististyle with the setae of the dorsal crest relatively weak, scattered, all straight; eighth sternite with the median lobe very small, low hemispherical in outline.

Male: Length about 13-14 mm.; wing 15-16.5 mm.; antenna about 7-8 mm.

Female: Length about 21-22 mm.; wing 16-17 mm.

Frontal prolongation of head light to medium brown, more pruinose at base; nasus distinct; palpi dark brown. Antennae (male) relatively long, as shown by the measurements; scape and pedicel light yellow, flagellum weakly bicolored, the stems light brown, the abrupt basal swellings brownish-black. Head light gray, with a conspicuous capillary brown vitta on vertex, the sides of the posterior vertex more extensively paler brown; vertical tubercle scarcely developed.

Mesonotum almost uniformly light cinnamon brown, more or less gray pruinose, praescutal stripes not or scarcely indicated; posterior sclerites of notum and the pleura more yellowed. Halteres with stem pale, knob infuscated. Legs brownish-yellow, the femoral tips more infuscated; remainder of legs passing through brown to dark brown. Wing of type whitish-subhyaline, with an extensive but weakly contrasted brown pattern that is arranged about as in other members of the group; the other specimens of the type series have the dark pattern much heavier and contrasted. Venation: *Rs* a little more than twice *m-cu*; tip of vein *R*<sub>1+2</sub> pale but entire;

cell 1st  $M_2$  relatively small, irregularly pentagonal; *m-cu* before fork of  $M_{3+4}$ ; petiole of cell  $M_1$  shorter than *m*.

Basal abdominal segments of male chiefly obscure orange to light brownish yellow, not or scarcely patterned, the sixth and succeeding segments deepening in color to form a dark brown ring; outer portion of hypopygium somewhat paler, brownish-yellow. In the female, abdomen more elongated; tergites with a conspicuous sublateral dark brown stripe on either side, these more widened behind. Male hypopygium (Text-fig. 2) with the tergal lobes, 9*t*, at mesal angle produced into a slender flattened blade; dorsal surface of tergite furrowed. Dorsal dististyle with outer half dilated. Inner dististyle, *id*, relatively long and narrow; setae of the scarcely developed dorsal crest relatively weak, scattered, all straight, not angularly bent as in allied species. Gonapophyses, *g*, with apical lobes unequal, the lower one a slender decurved spinous point. Appendage of ninth sternite an oval lobe, the longest setae exceeding the diameter of the lobe. Eighth sternite, 8*s*, transverse, the caudal margin gently and evenly convex, the median lobe very small, low-hemispherical in shape, the setae much longer than the lobe itself.

Holotype, ♂, Rancho Grande, July 18, 1946 (Beebe-Fleming). Allotopotype, ♀, May 3, 1948. Paratopotypes, 1 ♂, in copula and pinned with allotype; other ♂♀, May 9-16, 1948; paratype, of ♂, Mount Limon, 1500 meters, May 23, 1948 (Beebe-Fleming). One pair, taken in copula, were resting on the exposed root of a tree growing on a steep bank.

There are several similar regional members of the *monilifera* group, including *Tipula* (*Eumicrotipula*) *chacopata* Alexander, *T. (E.) inaequidens* Alexander, *T. (E.) infinita* Alexander, and *T. (E.) palenca* Alexander, all of which differ from the present species and among themselves in the structure of the male hypopygium, particularly the tergite, inner dististyle, gonapophysis and lobe of the eighth sternite.

14. *Tipula* (*Eumicrotipula*) *cristata* Alexander, 1945.

*Tipula* (*Eumicrotipula*) *cristata* Alexander; *Bol. Ent. Venezolana*, 4: 72-74, fig. 5; 1945.

Rancho Grande, September 13, 1944, collected by Lichy; types. Still known only from the type locality.

15. *Tipula* (*Eumicrotipula*) *infinita* Alexander, 1945.

*Tipula* (*Eumicrotipula*) *infinita* Alexander; *Bol. Ent. Venezolana*, 4: 76-78, fig. 6; 1945.

Rancho Grande, April, 1944, collected by Lichy; type. Still known only from the type locality.

16. *Tipula* (*Eumicrotipula*) *tovarensis* Alexander, 1947.

*Tipula* (*Eumicrotipula*) *tovarensis* Alexander; *Bol. Ent. Venezolana*, 6: 40-42, fig. 1; 1947.

Rancho Grande, August 24, 1944, collected by Lichy. Still known only from the type locality.

#### LIMONIINI.

##### *Limonia* Meigen.

17. *Limonia* (*Limonia*) *alfaroi* (Alexander, 1922).

*Dicranomyia alfaroi* Alexander; *Proc. U. S. Nat. Mus.*, 60, Art. 25: 2-3; 1922.

Rancho Grande, Aug. 8, 1946. The type was from San José, Costa Rica, taken October 7, 1920, by Alfaro. The typical form of the species ranges from southern Mexico to Venezuela.

18. *Limonia* (*Limonia*) *fumosa* (Alexander, 1912).

?*Furcomyia fumosa* Alexander; *Can. Ent.*, 44: 364, fig.; 1912.

Rancho Grande, June 9, 1937, collected by Vivas-Berthier. The type was taken at Amatuk, British Guiana, July 14, 1911, by F. E. Lutz. Still known only from Venezuela and British Guiana.

19. *Limonia* (*Limonia*) *onoma*, sp. n.

Thoracic pleura yellow, with a broad brown longitudinal stripe; front of head silvery, the posterior part dark brownish-gray; legs dark brown; wings subhyaline, conspicuously patterned with brown, including a quadrate area at origin of *Rs*, stigma and broad seams over cord and outer end of cell 1st  $M_2$ ; no darkening at arculus but with one at near one-fourth the length of cell *R*; *Sc*<sub>1</sub> ending about opposite midlength of *Rs*; basal section of vein  $R_{4+5}$  angulated; vein 2nd *A* bent strongly into the margin.

Female: Length about 7 mm.; wing 8.3 mm.; antenna about 1.5 mm.

Rostrum black; palpi brownish-black. Antennae black throughout; basal flagellar segments short-subcylindrical, the outer ones passing through oval to elongate; terminal segment nearly twice as long as the penultimate; longest verticils unilaterally arranged, exceeding the segments, excepting the terminal one. Head dark brownish-gray; front and anterior vertex silvery, the latter reduced to a linear strip.

Pronotum brownish-yellow. Mesonotum light brown, the lateral portions of praescutum restrictedly paler. Pleura yellow, with a broad brown longitudinal stripe extending from the cervical region to the base of abdomen, passing beneath the root of halteres. Halteres brown, base of stem restrictedly brightened, knob brownish-black. Legs with all coxae and trochanters pale yellow; remainder of legs dark brown, the femoral bases not or scarcely brightened. Wings with the ground subhyaline, with a conspicuous brown pattern that includes a quadrate area at origin of *Rs*, stigma, and broad seams

over cord and outer end of cell 1st  $M_2$ ; other darkenings include a circular area over fork of  $Sc$ , not touching the one at origin of  $Rs$ ; spots at ends of both Anal veins, that at 2nd  $A$  larger; a cloud at about one-fourth the length of cell  $R$ , in transverse alignment with the end of vein 2nd  $A$ ; no darkening at arculus; small marginal clouds on veins  $R_3$ ,  $R_{4+5}$ ,  $M_3$ ,  $M_4$  and  $Cu$ , scarcely evident on the veins near wing-tip; in outer radial field with a narrow subapical cloud in cells  $R_2$  and  $R_3$ ; veins brown,  $Sc$  brighter. Venation:  $Sc$  long,  $Sc_1$  ending beyond midlength of  $Rs$ ,  $Sc_2$  near its tip;  $Rs$  long, square at origin; inner end of cell  $R_2$  lying basad of that of 1st  $M_2$ , the basal section of  $R_{4+5}$  being angulated; cell 1st  $M_2$  elongate, subequal to vein  $M_{1+2}$  beyond it;  $m-cu$  at fork of  $M$ , longer than the distal section of  $Cu_1$ ; vein 2nd  $A$  bent strongly into the wing margin.

Abdomen dark brown, the sternites a trifle paler. Ovipositor with cerci slender, up-curved; hypovalvae longer and straight.

Holotype, ♀, Rancho Grande, May 12, 1946 (Beebe-Fleming).

The most similar regional species are *Limonia (Limonia) eiseni* (Alexander) and *L. (L.) macintyreii* Alexander, both of which are quite distinct in the wing pattern and details of venation.

20. *Limonia (Limonia) pampoecila* (Alexander, 1922), var.

*Dicranomyia pampoecila* Alexander; *Proc. U. S. Nat. Mus.*, 60, Art. 25: 1-2; 1922.

Rancho Grande, June 28, 1946; a fragmentary female. Close to the typical form but with the darkened femoral ring terminal in position whereas in typical *pampoecila* this is subterminal. The material is too poor for more exact determination. The type of *pampoecila* was from Tiribi, Costa Rica, collected October 9, 1920, by Alfaro. What appears to represent a single species ranges from Costa Rica to southeastern Brazil but this complex requires further study.

21. *Limonia (Limonia) thamyris*, sp. n.

General coloration gray, patterned with brown, the markings on the praescutum irregular in distribution; femora black, yellow basally, with a very narrow and indistinct yellow subterminal ring; wings whitish-subhyaline, with a heavy reticulated brown pattern; cell  $M_2$  open by the atrophy of  $m$ ; male hypopygium with the ventral dististyle large and fleshy, its rostrum with two long spines, the more proximal one from a small basal tubercle.

Male: Length about 5.5 mm.; wing 6 mm.

Rostrum brownish-black, sparsely pruinose; palpi black; rostrum in direct alignment with the front. Antennae with the short scape black, pedicel light yellow; flagellum black, the first segment paler; flagellar segments oval, slightly longer than the verticils. Head buffy brown, more pruinose medially behind, the center of the posterior vertex with a blackened area.

Pronotum brownish-yellow, pruinose. Mesonotal praescutum with the ground grayish pruinose, patterned irregularly with dark brown, the broader median stripe entire on the posterior third, in front branching into four narrow lines; lateral stripes similarly narrow; scutal lobes dark brown, the median area narrowly more silvery, the line continued caudad onto the scutellum; remainder of the latter brown, margined with darker brown; central portion of mediotergite dark brown, the lateral margins yellow. Pleura and pleurotergite striped longitudinally with brownish-yellow and dark brown, the surface pruinose to produce a variegated effect. Halteres with stem yellow, knob dark brown. Legs with the coxae obscure yellow, the fore pair darkened basally; trochanters obscure yellow, the fore pair darkened apically; femora obscure yellow on about the proximal third or fourth, the remainder brownish-black, enclosing a very narrow and indistinct obscure yellow ring some distance back from the blackened tip; tibiae dark brown; tarsi more yellowish-brown, the outer segments blackened, the posterior tarsi more uniformly so; claws (male) with a strong, nearly basal spine, with a smaller acute point still more basad. Wings (Text-fig. 3) with the restricted ground whitish-subhyaline, with a heavy reticulated brown pattern, paler brown in the apical and posterior cells of wing; cell  $Sc$  and the prearcular field more yellowed; a series of about a dozen brown dashes in cell  $C$ , narrower than the interspaces, cell  $Sc$  clearer yellow; three major darker brown areas in cell  $R$ , the first postarcular, the third at origin of  $Rs$ ; a similar slightly paler brown cloud in cell  $M$  just before the level of origin of  $Rs$ ; further major areas at stigma and anterior cord and near the outer end of vein  $R_3$ ; reticulated areas in apical and posterior cells paler and few in number but distinct; veins brown,  $Sc$  and  $R$  more yellowed. Venation:  $Sc$  moderately long,  $Sc_1$  ending just before midlength of  $Rs$ ,  $Sc_2$  at its tip;  $Rs$  angulated and short-spurred at origin; vein  $R_3$  slightly arcuated on basal half; cell  $M_2$  open by atrophy of  $m$ ;  $m-cu$  shortly before fork of  $M$ , long and very oblique, about one-fourth longer than the distal section of vein  $Cu_1$ .

Abdomen brown, the hypopygium yellowed. Male hypopygium (Text-fig. 6) with the tergite, 9t, transverse, the caudal margin very gently emarginate, the low lateral lobes with long pale setae. Basistyle,  $b$ , with the ventromesal lobe large, obtuse at apex. Dorsal dististyle a strong rod, the long apical spine nearly straight. Ventral dististyle,  $vd$ , large and fleshy, its area about one-third greater than the total of the basistyle; rostral prolongation stout, the two spines relatively long, subequal in length, placed one behind the other, the more basal one from a slightly larger tubercle. Gonapophysis,  $g$ , with mesal-apical lobe elongate, pale, terminating in a small darkened knob that is directed laterad.

Holotype, ♂, Rancho Grande, June 27, 1946 (Beebe-Fleming).

Generally similar to *Limonia* (*Limonia*) *pampecilla* (Alexander) and certain allied species, differing in the pattern of the legs and wings, the venation, especially the open cell  $M_2$ , and in the details of structure of the male hypopygium.

22. *Limonia* (*Neolimnobia*) *diva* (Schiner, 1868).

*Limnobia diva* Schiner; *Novara Reise*, Diptera, p. 46; 1868.

Rancho Grande, May 7-11, 1946, August 1-7, 1946; also September 5, 1942, collected by Lichy. Specimens taken between July 10 and 18, 1946, have the pattern of the femora much obscured, as noted below.

The species *diva*, as now restricted, has a wide range in tropical America, including the Greater Antilles (Cuba, Puerto Rico), Mexico, Venezuela and Brazil. Further races or closely allied species are found in Ecuador and Peru. The variability in the distinctness of the leg pattern in what seems to represent a single species has been discussed by the writer in another paper (Notes on the Tropical American species of Tipulidae (Diptera). VI. *Rev. de Entomologia—in press*). As there indicated, some individuals have two or, in cases, three dark rings on the femora while other specimens that are referred to *diva* without question have the femoral pattern much obscured, the darkened annuli being broader and more diffuse, in the extreme cases being so vague and extensive as to eliminate the yellow interspaces. The extreme specimens from Rancho Grande above mentioned do not quite represent the condition described but individuals from elsewhere in Venezuela have this leg pattern.

23. *Limonia* (*Rhipidia*) *brevipetalia*, sp. n.

Praescutum reddish-brown, with indications of darker lines and dashes; pleura and pleurotergite more gray pruinose, narrowly lined with darker; antennae dark, the two subterminal segments white; flagellar segments short-bipectinate; femora darkened subterminally, the actual tip narrowly yellow; wings pale yellow, with a very abundant pale brown dotted pattern, the marks chiefly confluent; male hypopygium with the caudal margin of the tergite very gently emarginate; rostral prolongation of the ventral dististyle unusually long and slender, the two spines subequal in length and size.

Male: Length about 7 mm.; wing 8 mm.

Rostrum brownish-black, shiny, the mouthparts conspicuous; palpi black. Antennae black, the long pedicels of the flagellar segments pale yellow; subterminal two segments whitened; flagellar segments one to three strongly produced but simple; segments four and five each with two conspicuous branches that slightly exceed in length the remainder of organ (the succeeding segments broken, the color pattern having been noted before the breakage occurred). Head

dark gray; anterior vertex reduced to a linear strip that does not exceed in width two rows of ommatidia.

Pronotum dark brown, the scutellum and pretergites more reddish-brown. Mesonotal praescutum chiefly reddish-brown, with indications of dark lines and dashes, as well as the posterior end of the usual median stripe; scutal lobes dark; scutellum yellowish-gray with a black central line; mediotergite gray pruinose, the central part more heavily so, the lateral borders paling to yellow. Pleura and pleurotergite gray pruinose, narrowly lined longitudinally with dark brown, the dorsal stripe most conspicuous, the ventral line a short dash on the sternopleurite; the dorsal stripe begins at the propleura, narrowed behind at the root of the halteres. Halteres with stem dirty white, more yellowed at base, knob infuscated. Legs with the coxae brown, pale at tips; trochanters yellow; femora light brown, paler basally, deepening to a somewhat more intense subterminal ring, the actual tip narrowly yellow; tibiae and tarsi obscure yellow, the terminal two segments black; claws (male) with a strong subbasal spine, with a smaller one a little more basad. Wings (Text-fig. 4) with the restricted ground pale yellow, with a very abundant pale brown dotted pattern, the areas being so abundant as to be extensively confluent; very small darker dots beyond midlength of vein  $R$ , origin of  $R_s$ , and fork of  $Sc$ ; cord and outer end of cell 1st  $M_2$  narrowly seamed with darker; a more or less evident series of two or three brown spots along vein  $Cu$  in cell  $M$ ; veins yellow, variegated with darker in the more heavily patterned areas. Venation:  $Sc_1$  ending opposite or just beyond midlength of  $R_s$ ,  $Sc_2$  at its tip;  $m-cu$  more than one-third its length before the fork of  $M$ .

Abdominal tergites reddish-brown, the lateral borders narrowly blackened; sternites a trifle more yellowed; hypopygium and segment eight yellow. Male hypopygium (Text-fig. 7) with the tergite, 9t, transverse, the caudal margin very gently emarginate, the surface of the low lobes with abundant setae. Basistyle,  $b$ , subequal in area to the ventral dististyle, the ventromesal lobe large, with a small lateral lobule. Dorsal dististyle a gently curved blackened rod, the tip acute. Ventral dististyle,  $vd$ , with the rostrum unusually long and slender, the two spines slightly separated, the outermost at near midlength of the prolongation; spines straight, subequal in size. Gonapophysis,  $g$ , with the mesal-apical lobe stout, gently curved, heavily blackened, the tip acute or subacute. Aedeagus,  $a$ , stout.

Holotype, ♂, Rancho Grande, June 7, 1946 (Beebe-Fleming).

In its abundantly dotted wings, the present fly most resembles species such as *Limonia* (*Rhipidia*) *monoxantha* Alexander, which differs conspicuously in the coloration and in the wing pattern. The male sex of *monoxantha* is still unknown.



24. *Limonia (Rhipidia) domestica* (Osten Sacken, 1859).

*Rhipidia domestica* Osten Sacken; *Proc. Acad. Nat. Sci. Philadelphia*, 1859: 208, pl. 3, figs. 8-9; 1859.

Rancho Grande, June 26-28, July 10, August 3, 1946.

Described from the eastern United States; very widely distributed, ranging from Connecticut, New York and New Jersey, southward throughout the southern states; Antilles (Cuba, Jamaica, Puerto Rico, Lesser Antilles); Venezuela; Brazil.

25. *Limonia (Rhipidia) flabelliformis* Alexander, 1934, var.

*Limonia (Rhipidia) flabelliformis* Alexander; *Ann. Ent. Soc. America*, 27: 59-60; 1934.

Rancho Grande, May 29, 1946. The type was from Chiriqui, Panama, altitude 5400 feet, taken September 13, 1932, by Lawlor. The typical form ranges from Panama to Peru.

26. *Limonia (Dicranomyia) brevicubitalis* Alexander, 1947.

*Limonia (Dicranomyia) brevicubitalis* Alexander; *Bol. Ent. Venezolana*, 6: 87-90, figs. 7, 8; 1947.

Rancho Grande, May 5, June 16-28, July 23, 1946; May 13, 1948. Type from the Rio Chacaito, Miranda, Venezuela, 980 meters, September 18, 1938, collected by Vivas-Berthier. Other specimens from Los Venados, D. F., 1520 meters, February 26, 1939, Vivas-Berthier. Still known only from Venezuela.

27. *Limonia (Dicranomyia) brevivena capra* Alexander, 1947.

*Limonia (Dicranomyia) capra* Alexander; *Bol. Ent. Venezolana*, 6: 57-59, figs. 1, 5; 1947.

Rancho Grande, April 21, 1946. Type from here, collected by Lichy on August 27, 1944. Elsewhere in Venezuela known from the Rio Chacaito, Miranda, 980 meters, September 18, 1938, Vivas-Berthier; Los Canales, Nanguata, D. F., 720 meters, September 24, 1938, Vivas-Berthier.

I am considering this as representing a race of the more northern and unusually widespread *brevivena* (Osten Sacken, 1869).

28. *Limonia (Dicranomyia) serratifiloba*, sp. n.

Allied to *mutata*; general coloration gray, the praescutum and scutal lobes extensively more infuscated; legs chiefly black, the femoral bases obscure yellow; wings with a strong brownish tinge, the very small sub-circular stigma darker brown; male hypopygium with the tergite narrowly transverse, the caudal margin nearly truncate; rostral prolongation of the ventral dististyle stout, the two spines relatively short, straight, from small basal tubercles; mesal-apical lobe

of the gonapophysis long and slender, the margin with conspicuous serrulations.

Male: Length about 5.5 mm.; wing 6 mm.

Rostrum and palpi brownish-black. Antennae black throughout; flagellar segments oval. Head gray; anterior vertex very narrow, reduced to a linear strip.

Pronotum brownish-gray. Mesonotum chiefly dark brownish-gray, the praescutum and scutal lobes extensively more infuscated. Pleura blackened, heavily pruinose. Halteres relatively long, stem dirty white, knob infuscated. Legs with the coxae dark brown, sparsely pruinose; trochanters obscure yellow; femora obscure yellow basally, passing into black; remainder of legs black; claws (male) with at least two basal teeth, the outermost strongest. Wings (Text-fig. 5) with a strong brownish tinge, the very small sub-circular stigma darker brown; exceedingly vague and narrow seams over the cord; prearcular field a little more whitened; veins brown. Venation:  $Sc_1$  ending opposite origin of  $R_s$ ,  $Sc_2$  near its tip;  $R_s$  slightly more than twice as long as the more arcuated basal section of  $R_{4+5}$ ; cell 1st  $M_2$  a trifle longer than vein  $M_1$ ;  $m-cu$  a short distance before the fork of  $M$ .

Abdomen, including hypopygium, dark brown. Male hypopygium (Text-fig. 8) with the tergite, 9t, narrowly transverse, the caudal margin nearly truncate; scattered pale setae along the margin, with an additional discal pair. Basistyle,  $b$ , with the ventromesal lobe large, obtuse, provided with long yellow setae. Dorsal dististyle a curved blackened rod, narrowed very gradually into a long acute spine. Ventral dististyle,  $vd$ , fleshy, its total area somewhat greater than that of the basistyle; rostral prolongation stout, its tip obtuse; rostral spines two, arising from equal small tubercles, the spines straight and relatively short. Gonapophysis,  $g$ , with the blade pale, the mesal-apical lobe long and slender, gently curved, the margin with several conspicuous serrulations.

Holotype, ♂, Rancho Grande, June 16, 1946 (Beebe-Fleming).

The present fly is generally similar to species such as *Limonia (Dicranomyia) mutata* Alexander, differing in the coloration of the body and wings and in the structure of the male hypopygium, particularly the tergite, ventral dististyle and gonapophyses.

29. *Limonia (Peripheroptera) angustifasciata* (Alexander, 1922).

*Peripheroptera angustifasciata* Alexander; *Trans. Ent. Soc. London*, 1922: 35-36; 1922.

Rancho Grande, April 17-27, June 25, July 15, 1946; July 10, 1945; March 26, 1948. Two further specimens of the migrant series, May 23, 1948, ♀ (No. 48569) and July 21, 1948, ♂ (No. 481275).

The type was from "Venezuela," with no further data, contained in the collection of the Vienna Museum and to this time no further specimens had been taken. The wings in

the present series agree well with those of the type female except in the sexual characters, as found in most species in the subgenus *Peripheroptera* Schiner. I regard the identification as correct.

30. *Limonia (Geranomyia) callinota* Alexander, 1941.

*Limonia (Geranomyia) callinota* Alexander; *Ann. Mag. Nat. Hist.*, (11) 8: 318-320; 1941.

Rancho Grande, June 28, 1946; 1 ♀. The type was from Carpapata, Junin, Peru, 2600 meters, May 15, 1940, collected by Woytkowski. Known only from these two stations. I see no reason to question the present determination even though it is based on the female sex.

31. *Limonia (Geranomyia) furor* Alexander, 1944.

*Limonia (Geranomyia) furor* Alexander; *Bol. Ent. Venezolana*, 3: 183-185, fig. 5; 1944.

Rancho Grande, June 26, 1946. Type from Rio Chacaito, Miranda, Venezuela, 980 meters, September 18, 1938, Vivas-Berthier. Still known only from Venezuela.

32. *Limonia (Geranomyia) opinator*, sp. n.

Size small (wing, male, 5.5 mm.); rostrum relatively short; praescutum light gray, with three brown stripes additional to the darkened lateral borders; femora with a narrow brown subterminal ring; wings grayish-subhyaline, with a very restricted darker pattern, including a common cloud over the origin of *Rs* and fork of *Sc*; male hypopygium with the ventral dististyle large and fleshy, the prolongation slender, with two spines that arise from slightly unequal tubercles; gonapophysis with mesal-apical lobe a slender pale horn.

Male: Length, excluding rostrum, about 5 mm.; wing 5.5 mm.; rostrum about 2.5 mm.

Rostrum of moderate length, approximately one-half the remainder of body, brownish-black throughout. Antennae black, relatively short; flagellar segments oval, with short verticils. Head gray, the posterior vertex with a dark brown longitudinal stripe on either side of the subequal median ground line.

Pronotum buffy, weakly infuscated medially and on the sides. Mesonotal praescutum light gray, with three dark brown stripes on the disk, the intermediate pair convergent behind and becoming confluent at the suture, the shorter median stripe becoming obsolete some distance before the suture; lateral praescutal borders less heavily darkened, humeral region yellowed; scutum chiefly brownish-gray, including the lobes; posterior sclerites of notum dark brown, pruinose. Pleura with a dark brown dorsal stripe, the ventral pleurites yellow. Halteres with stem obscure yellow, its base brighter, knob dark brown. Legs with the coxae yellow, the fore pair with the basal half darkened; trochanters yellow; femora obscure yellow, passing into light

brown outwardly, with a narrow darker brown subterminal ring, subequal in extent to the yellow tip; tibiae and tarsi pale, the outer tarsal segments dark brown; claws slender, with a single strong basal spine. Wings (Text-fig. 9) grayish-subhyaline, the prearcular and narrow costal region more yellowed; a very restricted dark pattern, including the stigma; a small common cloud over the origin of *Rs* and fork of *Sc*; and vague narrow seams over the cord and outer end of cell 1st *M*<sub>2</sub>; veins brown, pale in the yellowed areas. Venation: *Sc* short, *Sc*<sub>1</sub> ending immediately beyond the origin of *Rs*, *Sc*<sub>2</sub> opposite this origin; cell 1st *M*<sub>2</sub> long, nearly equal to the distal section of vein *M*<sub>1+2</sub>; *m-cu* shortly beyond the fork of *M*.

Abdomen, including hypopygium, dark brown. Male hypopygium (Text-fig. 16) with the tergite, 9t, transverse, the caudal border broadly emarginate, the relatively low lateral lobes with numerous long coarse setae. Basistyle, *b*, small, its total area a little less than one-third that of the ventral dististyle; ventromesal lobe simple. Dorsal dististyle a slender curved rod, the slightly upcurved tip acute. Ventral dististyle, *vd*, large and fleshy; rostral prolongation slender, the two spines straight, slightly unequal in length from tubercles of unequal size, the longer spine lying more basad on the longer tubercle. Gonapophysis, *g*, with the mesal-apical lobe a slender nearly straight pale horn. Aedeagus, *a*, with apical lobes obtuse.

Holotype, ♂, Rancho Grande, June 26, 1946 (Beebe-Fleming).

While generally similar to species such as *Limonia (Geranomyia) recisa* (Alexander), the present fly differs evidently in the structure of the male hypopygium.

33. *Limonia (Geranomyia) stenophallus* Alexander, 1944.

*Limonia (Geranomyia) stenophallus* Alexander; *Ann. Ent. Soc. America*, 37: 310-311; 1944.

Rancho Grande, June 26, 1946. The type was from Abitagua, Ecuador, 1100 meters, March 21, 1940, collected by Macintyre. The species ranges from Venezuela to Ecuador and Peru.

34. *Limonia (Geranomyia) subvirescens* Alexander, 1930.

*Limonia (Geranomyia) subvirescens* Alexander; *Journ. N. Y. Ent. Soc.*, 38: 112; 1930.

Rancho Grande, July 23, 1946. The type was from the Trinidad Mountains, Cuba, 1000 feet, taken March 25, 1925, by J. G. Myers. Ranges from the Greater Antilles (Cuba) to Venezuela.

35. *Limonia (Geranomyia) tibialis* (Loew, 1851).

*Aporosa tibialis* Loew; *Linnaea Entomologica*, 5: 397; 1851.

Rancho Grande, July 5-31, 1946. The type was from Brazil, without further data, collected by Sellow. This is one of the most

widely distributed of all tropical American Tipulidae, ranging from the Greater Antilles (Jamaica, Puerto Rico); Lesser Antilles (Dominica, Grenada); Central America; British Guiana, into Paraguay. It may be noted that this is the only species of crane-fly so far taken on the Galápagos Islands.

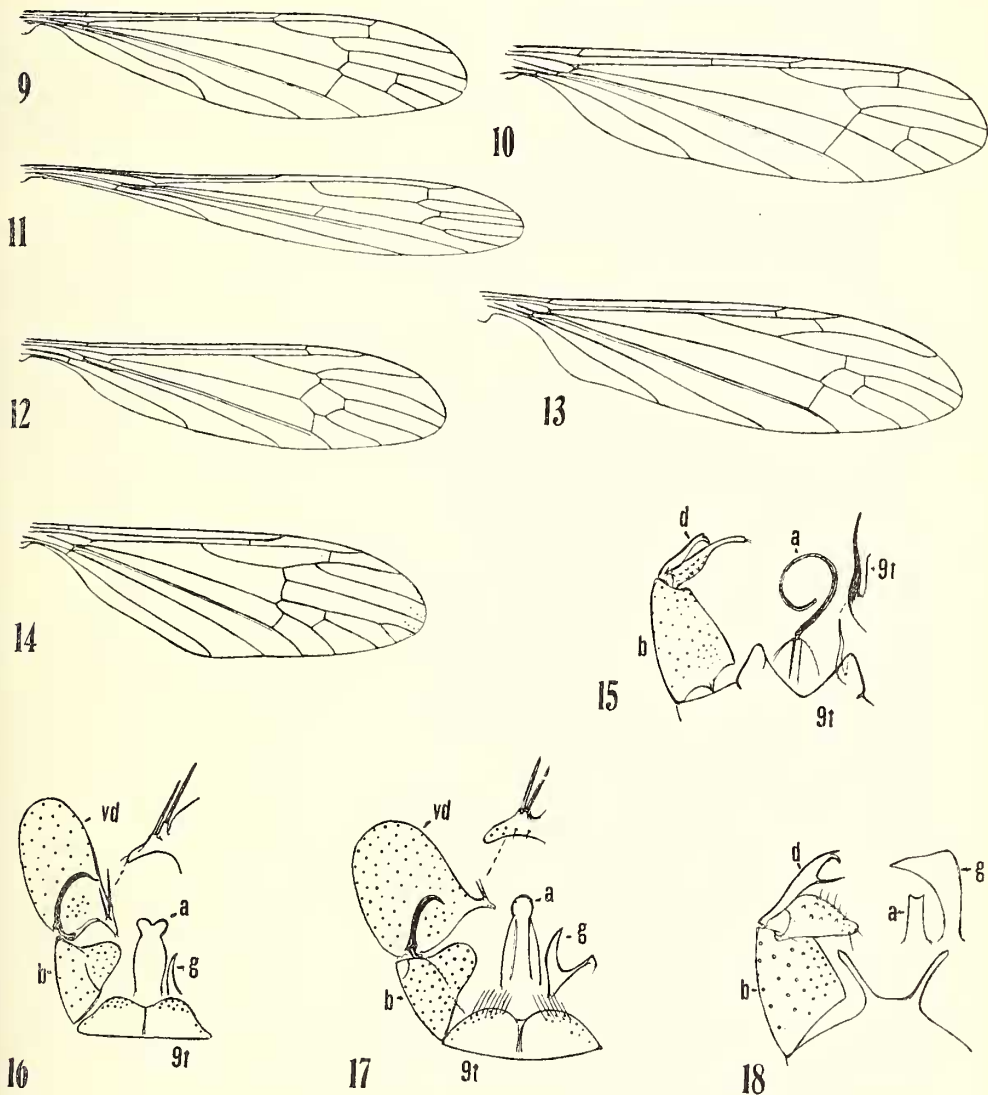
36. *Limonia (Geranomyia) timens*, sp. n.

Size small (wing under 6 mm.); rostrum short, only a little more than one-third the length of wing; praescutum gray with three narrow brown stripes, additional to the paler

sublateral darkening; femora with a very poorly indicated pale brown subterminal ring; wings weakly tinged with brown, with a very restricted pale brown pattern, including a common area over the origin of *Rs* and fork of *Sc*; male hypopygium with the ventral dististyle large and fleshy, the prolongation relatively short but slender, more or less constricted basad of the spines, the latter arising from strong tubercles.

Male: Length, excluding rostrum, about 5 mm.; wing 5.8 mm.; rostrum about 2.1 mm.

Rostrum short, only a little more than one-



TEXT-FIG. 9-18. (Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyles; *g*, gonapophysis; *od*, outer dististyle; *t*, tergite; *vd*, ventral dististyle). 9—*Limonia (Geranomyia) opinator*, sp. n.; venation. 10—*Limonia (Geranomyia) timens*, sp. n.; venation. 11—*Orimarga (Orimarga) dichroptera*, sp. n.; venation. 12—*Helius (Helius) bitergatus*, sp. n.; venation. 13—*Protohelius venezolanus*, sp. n.; venation. 14—*Paradelphomyia (Oxyrhiza) venezolana*, sp. n.; venation. 15—*Helius (Helius) bitergatus*, sp. n.; male hypopygium. 16—*Limonia (Geranomyia) opinator*, sp. n.; male hypopygium. 17—*Limonia (Geranomyia) timens*, sp. n.; male hypopygium. 18—*Paradelphomyia (Oxyrhiza) venezolana*, sp. n.; male hypopygium.

third the length of the wing, black throughout. Antennae black; flagellar segments subcylindrical, with inconspicuous verticils. Head above gray, with a blackish line on either side of the median ground line of the posterior vertex.

Pronotum buffy gray, dark brown medially. Mesonotal praescutum gray, with three narrow but conspicuous intermediate dark brown stripes that are subequal in width and nearly twice as broad as the interspaces; sub-lateral stripes broader but less intense than the three central ones; posterior sclerites of notum gray, each scutal lobe with two darkened areas. Pleura chiefly pale reddish-brown, the surface vaguely pruinose, the more ventral portions paler. Halteres with stem pale, knob dark brown. Legs with the coxae and trochanters pale yellow; femora yellow, with a narrow and very poorly indicated pale brown subterminal ring, the yellow apex subequal in extent; remainder of legs brownish-yellow, the tarsi not or scarcely darkened. Wings (Text-fig. 10) with a weak brownish tinge, the prearcular field and relatively broad costal border more yellowed, the latter pattern continued almost to the wing tip; a very restricted pale brown pattern, including the stigma, a smaller common area over the origin of *Rs* and fork of *Sc*, and a still smaller cloud at the supernumerary crossvein in cell *Sc*; veins brownish-yellow, slightly darker in the patterned areas. Venation: *Sc* relatively short, *Sc*<sub>1</sub> ending about opposite one-third the length of *Rs*, *Sc*<sub>2</sub> a short distance back from tip; *r-m* reduced in length by the approximation of veins *R*<sub>4+5</sub> and *M*<sub>1+2</sub>; cell 1st *M*<sub>2</sub> slightly longer than vein *M*<sub>3</sub>; *m-cu* at fork of *M*.

Abdomen, including hypopygium, pale yellowish-brown. Male hypopygium (Text-fig. 17) with the tergite, 9*t*, transverse, the caudal border with a median notch to form two low rounded lobes that are provided with abundant long setae. Basistyle, *b*, relatively small, its total area about one-third that of the ventral dististyle; ventromesal lobe simple. Dorsal dististyle a gently curved rod, the tip gradually narrowed into a slender spine. Ventral dististyle, *vd*, large and fleshy, the rostral prolongation relatively short but slender, more or less constricted basad of the spines; spines two, from strong tubercles, slightly unequal in length, the shortest subequal in length to the prolongation. Gonapophysis, *g*, with the mesal-apical lobe pale, appearing as a gently curved flattened horn, the tip acute.

Holotype, ♂, Rancho Grande, June 26, 1946 (Beebe-Fleming).

Related to species such as *Limonia* (*Geranomyia*) *reicisa* Alexander, *L. (G.) scolopax* (Alexander) and *L. (G.) opinator*, sp. n., differing from all chiefly in the structure of the male hypopygium.

37. *Limonia* (*Geranomyia*) *vindicta* Alexander, 1943.

*Limonia* (*Geranomyia*) *vindicta* Alex-

ander; *Bol. Ent. Venezolana*, 2: 21-22; 1943.

Rancho Grande, May 10, 1946. Type from Rio Chacaito, Miranda, Venezuela, 980 meters, September 18, 1938, collected by Vivas-Berthier. The typical form is still known only from Venezuela; the race, *dilucida* Alexander, from Ecuador.

38. *Limonia* (*Geranomyia*) *walkeri* Alexander, 1930.

*Limonia* (*Geranomyia*) *walkeri* Alexander; *Ann. Ent. Soc. America*, 23: 730-732; 1930.

Rancho Grande, September 5, 1937, Vivas-Berthier. The type was from Vista Nieve, Mount Santa Marta, Colombia, 5000 feet, August 8, 1926, collected by Fred W. Walker. Other typical material from Jaragua, Santa Catharina, Brazil, August 29, 1929. The species occurs from Colombia and Venezuela to southeastern Brazil.

#### *Orimarga* Osten Sacken.

39. *Orimarga* (*Orimarga*) *dichroptera*, sp. n.

Allied to *niveitarsis*; general coloration black, the sides of the thorax with two narrow silvery longitudinal stripes; legs black, the femoral bases of the middle and hind legs yellowed; tarsi extensively white; wings strongly bicolored, the cephalic half brownish-black, the posterior half and the prearcular field whitened; vein *Sc* short, *Sc*<sub>1</sub> ending some distance before origin of *Rs*; cell *M*<sub>3</sub> approximately twice its petiole; vein 2nd *A* short; abdomen elongate.

Female: Length about 9.5-10 mm.; wing 5.5 mm.; abdomen alone 7.5-8 mm.

Rostrum and palpi black. Antennae black throughout, short; flagellar segments oval. Head above black, sparsely dusted with gray.

Thoracic dorsum black, the praescutum with a narrow silvery gray longitudinal stripe. Pleura black, with a slightly broader silvery gray longitudinal stripe, extending from the cephalic portion of the sternopleurite to the abdomen. Halteres black. Legs with the fore coxae and trochanters black, the remaining coxae black basally, their apices broadly yellow; trochanters yellow; fore legs black, middle and posterior legs black, the femoral bases extensively yellow; outer two-fifths of basitarsi and remainder of tarsi excepting the last segment snowy white. Wings (Text-fig. 11) strongly bicolored, the cephalic half brownish-black, the posterior part more whitened; darkened areas include the anterior third of wing, most of cells *R* and *M*, bases of *Cu* and 1st *A*, and all of cell 2nd *A*; prearcular field chiefly white; veins brownish-black. Venation: *Sc* short, *Sc*<sub>1</sub> ending a distance before origin of *Rs* greater than the length of *m-cu*, the latter opposite the base of *Rs*; *R*<sub>2+3</sub> and *R*<sub>2</sub> subequal, about one-half *R*<sub>1+2</sub>; inner end of cell *R*<sub>5</sub> a little more distad than those of cells *R*<sub>3</sub> and

$M_2$ ; cell  $M_3$  about one and one-half to two times its petiole; vein 2nd A short.

Abdomen elongate, black; valves of ovipositor horn-yellow.

Holotype, ♀, Rancho Grande, July 9, 1946 (Beebe-Fleming). Paratopotype, 1 ♀.

Readily distinguished from *Orimarga* (*Orimarga*) *niveitarsis* Alexander, and its larger race *majuscula* Alexander, by the strongly bicolored wings, with the venational details distinct.

40. *Orimarga* (*Orimarga*) *excessiva* Alexander, 1926.

*Orimarga* (*Orimarga*) *excessiva* Alexander; *Ann. Ent. Soc. America*, 19: 380-381; 1926.

Rancho Grande, May 10, June 26-28, 1946. Type from Tachira, Venezuela, April 4, 1920, Williamsons & Ditzler. Still known only from Venezuela.

#### *Helius* St. Fargeau.

41. *Helius* (*Helius*) *bitergatus*, sp. n.

Praescutum and scutal lobes brown; posterior sclerites of notum and the pleura lighter brown; legs dark brown, the outer tarsal segments paling to yellowish-brown; wings with a strong brownish tinge, stigma darker brown; male hypopygium with the tergite produced into two conspicuous earlike lobes that are directed beneath into the straight tergal spines; basistyle without lobes; dististyle terminal, the outer spine of outer style reduced; aedeagus beyond the enlarged base more or less bifid.

Male: Length about 6.5 mm.; wing 6.8 mm.

Rostrum and palpi black, the former subequal in length to the remainder of head. Antennae black throughout; flagellar segments oval, with long conspicuous verticils. Head black; eyes very large, reducing the anterior vertex to a linear strip.

Pronotum brown, the pretergites more testaceous yellow. Mesonotal praescutum and scutal lobes brown, the humeral region more yellowed; median region of scutum and the scutellum brownish-yellow; postnotum light brown, the central area of mediotergite darker. Pleura and pleurotergite more reddish-brown. Halteres with stem obscure yellow, knob infuscated. Legs with coxae brownish-yellow; remainder of legs dark brown, the outer tarsal segments paling to light brown or yellowish-brown, not whitened as in most allied species. Wings (Text-fig. 12) with a strong brownish tinge, the prearcular field more whitened; stigma elongate-oval, darker brown; veins dark brown. Venation: Branches of  $R_s$  gradually divergent, cell  $R_2$  at margin only a trifle more extensive than cell  $R_3$ ;  $r-m$  short but present;  $m-cu$  at near two-thirds the length of vein  $M_{3+4}$  and opposite  $r-m$ .

Abdomen, including hypopygium, brownish black. Male hypopygium (Text-fig. 15) with the tergite, 9 $t$ , produced into two conspicuous triangular earlike lobes that are

further armed beneath with the usual lateral tergal arms, the spine of the latter straight to gently sinuous, its tip acute; entire posterior border of tergite, including the lobes, glabrous. Basistyle,  $b$ , unarmed with lobes but with a small concentration of setae on mesal face near proximal end. Dististyles,  $d$ , terminal, the outer style small, glabrous, its outer spine reduced to a triangular tubercle, the axial spine strong, decurved; inner dististyle longer, slightly dilated on basal half and here provided with scattered tubercles, each bearing a small seta. Aedeagus,  $a$ , beyond the enlarged base more or less bifid, curved into a circle, the tip pale.

Holotype, ♂, Rancho Grande, July 31, 1946 (Beebe-Fleming).

The yellowish-brown tarsi are quite different from those of the various species that center around *Helius* (*Helius*) *albitarsis* (Osten Sacken), which have the tarsi snowy white. The structure of the male hypopygium of the present fly is distinctive.

42. *Helius* (*Helius*) *rectispina* Alexander, 1947.

*Helius* (*Helius*) *rectispina* Alexander; *Bol. Ent. Venezolana*, 6: 43-44, fig. 2; 1947.

Rancho Grande, August 27, 1944, collected by Lichy; type. Still known only from the type locality.

#### *Protohelius* Alexander.

43. *Protohelius venezolanus*, sp. n.

General coloration of body dark brown to black; antennae unusually long, nearly one-third the length of wing; legs brownish-black, the outer tarsal segments paling to brown; wings with a strong blackish tinge, the prearcular and costal fields a trifle darker;  $Sc$  long,  $Sc_1$  ending about opposite the fork of the long straight  $R_s$ ;  $m-cu$  just beyond the fork of  $M$ .

Female: Length about 7 mm.; wing 8 mm.; antenna about 2.5 mm.

Rostrum short and inconspicuous; palpi comparatively long, black. Antennae unusually long for the female sex, as shown by the measurements, black, the pedicel a trifle brightened; flagellar segments cylindrical, becoming shorter and more slender outwardly; first segment long, nearly equal to segments two and three combined; verticils short and inconspicuous. Head black, sparsely pruinose; eyes large, the anterior vertex reduced to a narrow strip.

Pronotum reduced, hidden from above by the forward projecting praescutum; pretergites testaceous yellow. Mesonotum uniformly dark brown; setae long and conspicuous, especially on scutellum. Pleura dark brown. Halteres dark brown, the extreme base of stem brightened. Legs brownish-black, the trochanters more testaceous; outer tarsal segments paling to brown; claws (female) long and slender, simple. Wings (Text-fig. 13) with a strong blackish tinge, the pre-

arcular and costal fields a trifle darker; veins brownish-black. All veins beyond cord with abundant macrotrichia. Venation:  $Sc_1$  ending about opposite fork of the long straight  $R_s$ ,  $Sc_2$  near its tip;  $R_2$  and  $R_{1+2}$  subequal in length, the former pale but strong;  $R_{4+5}$  about four-fifths as long as  $R_s$ ; inner end of cell 1st  $M_2$  arcuated;  $m-cu$  just beyond the fork of  $M$ .

Abdominal tergites brown, the borders narrowly more blackened, sternites more uniformly paler brown. Ovipositor with valves very long, the cerci slender, gently upcurved.

Holotype, ♀, Rancho Grande, July 27, 1946 (Beebe-Fleming).

The only other neotropical species of the genus is *Protohelius cisatlanticus* Alexander, of Ecuador. This differs in the much paler color of the body, legs and wings and in the details of venation. From the length of the antennae in the female sex of the present fly it is suspected that this organ in the male may be considerably longer than in *cisatlanticus*. Each of the two species mentioned is known from a single specimen, *cisatlanticus* a male, *venezolanus* a female, and in these the antennae are virtually equal in both cases. Almost invariably in the Tipulidae, species having elongate antennae in the male sex have these much shorter in the corresponding females.

#### HEXATOMINI.

##### *Paradelphomyia* Alexander.

#### 44. *Paradelphomyia (Oxyrhiza) venezolana*, sp. n.

General coloration of thorax almost uniformly medium brown; wings with a weak brownish tinge, stigma oval, pale brown; macrotrichia of wing cells very sparse, in the extreme outer ends of cells  $R_3$  to  $M_1$  inclusive; wings (male) widest nearly opposite the termination of vein 2nd  $A$ ; male hypopygium with the arms of the ventral fork slender, their tips very feebly dilated, subacute; gonapophysis with the blade triangular, the mesal angle unusually slender and pointed.

Male: Length about 4 mm.; wing 4.4 mm.

Rostrum black; palpi dark brown. Antennae dark brown throughout; basal flagellar segments oval, the outer ones passing into cylindrical; verticils elongate. Head above dark.

Thorax almost uniformly medium brown, the posterior sclerites somewhat more testaceous; praescutal setae very sparse but long. Halteres pale. Legs with the coxae brownish-yellow; trochanters light yellow; remainder of legs brown, the tarsal segments paling to yellowish brown; tibial spurs present. Wings (Text-fig. 14) with a weak brownish tinge, the prearcular and costal fields a trifle more yellowed; stigma oval, pale brown; scarcely apparent dark seams over cord and outer end of cell 1st  $M_2$ , best evidenced by a slight deepening in color of the veins, the remaining veins pale brown, yellowed in the brightened fields. Wings (male) conspicuously

widened nearly opposite the termination of vein 2nd  $A$ . Macrotrichia of cells very sparse and restricted, in the extreme outer ends of cells  $R_3$  to  $M_1$ , inclusive, most numerous in cell  $R_4$  where they total 12 or 13. Venation:  $Sc_1$  ending about opposite fork of  $R_s$ ,  $Sc_2$  nearly opposite two-thirds the length of this vein; veins  $R_3$  and  $R_4$  nearly parallel to one another, not as conspicuously divergent as in *costaricensis*, cell  $R_3$  at margin narrower;  $m-cu$  only a little more than its own length beyond the fork of  $M$ .

Abdomen pale brown, the hypopygium and eighth segment brownish black. Male hypopygium (Text-fig. 18) with the outer dististyle terminating in two slightly unequal spines, the additional ventral spine unusually long and slender. Gonapophysis,  $g$ , with the apical blade triangular, the mesal angle unusually slender and pointed. Each arm of the ventral fork slender, the tip very feebly to scarcely dilated, the apex subacute.

Holotype, ♂, Rancho Grande, July 25, 1948 (Beebe-Fleming); migrant No. 481374.

The most similar regional species is *Paradelphomyia (Oxyrhiza) costaricensis* (Alexander), which differs in the details of venation, as described. Unfortunately, the male sex of *costaricensis* is still unknown and the important hypopygial features cannot be compared at this time. The tropical American species of the genus have been considered in a paper by the writer (*Rev. de Entomologia*, 19: 151-153, fig. 2; 1948).

##### *Austrolimnophila* Alexander.

#### 45. *Austrolimnophila (Austrolimnophila) vivas-berthieri* Alexander, 1938.

*Austrolimnophila (Austrolimnophila) vivas-berthieri* Alexander; *Rev. de Entomologia*, 9: 436-437; 1938.

Rancho Grande, September 5, 1937, Vivas-Berthier; type.

The species is still known only from the unique type.

The tropical American species of *Austrolimnophila* are discussed by the writer elsewhere (*Rev. de Entomologia*, 19: 153-168, figs. 3, 4, 7-18; 1948).

##### *Epiphragma* Osten Sacken.

#### 46. *Epiphragma (Epiphragma) enixa* Alexander, 1939.

*Epiphragma (Epiphragma) enixa* Alexander; *Ann. Mag. Nat. Hist.*, (11) 3: 190-192; 1939.

Rancho Grande, March 15, May 8, 1946 (Beebe-Fleming). The types were from Abitagua, Ecuador, 1200 meters, March 29, 1937, collected by Clark-Macintyre. The species is still known only from Ecuador and Venezuela.

#### 47. *Epiphragma (Epiphragma) persancta* Alexander, 1938.

*Epiphragma (Epiphragma) persancta* Alexander; *Rev. de Entomologia*, 9: 248-249; 1938.

Rancho Grande, March 28, April 18, May

8-23, 1946; April 10, May 8, 1945; April 25-May 3, 1948. Part of the type material was taken here on September 5, 1947, by Vivas-Berthier. The species occurs from Venezuela to southeastern Brazil.

48. *Epiphragma* (*Epiphragma*) *solatrix* (Osten Sacken, 1859).

*Limnophila* (*Epiphragma*) *solatrix* Osten Sacken; *Proc. Acad. Nat. Sci. Philadelphia*, for 1859: 238; 1859.

Rancho Grande, July 18-23, August 5, 1946. Also taken here August 29, 1937, by Vivas-Berthier. The species was originally described from the eastern United States. It ranges from southern New York through Mexico and Central America to northern Argentina.

The neotropical species of *Epiphragma* have been discussed by the writer (*Rev. de Entomologia*, 19: 168-175, fig. 5; 1948).

#### *Polymera* Wiedemann.

49. *Polymera* (*Polymerodes*) *conjunctoides* Alexander, 1920.

*Polymera* (*Polymerodes*) *conjunctoides* Alexander; *Ent. News*, 31: 74-75; 1920.

Rancho Grande, June 28, 1946; 2 ♂♂. The type was from Itacoatiara, Amazonian Brazil, October 16, 1919, collected by Parish. New to Venezuela; formerly from Amazonian Brazil, Ecuador and Peru.

The neotropical species of *Polymera* are considered in a paper by the writer (*Rev. de Entomologia*, 19: 182-190, figs 27-33; 1948).

#### *Limnophila* Macquart.

50. *Limnophila guttulatissima* Alexander, 1913.

*Limnophila guttulatissima* Alexander; *Proc. U. S. Nat. Mus.*, 44: 546-547, fig. 38; 1913.

Rancho Grande, July 17, 1946. Type from Totonicapan, Guatemala, collected by Eisen. Known hitherto from Guatemala and Costa Rica.

The neotropical species of *Limnophila* are discussed in a paper by the writer (*Rev. de Entomologia*, 19: 513-518, figs. 6, 7; 1948).

#### *Shannonomyia* Alexander.

51. *Shannonomyia araguae* Alexander, 1947.

*Shannonomyia araguae* Alexander; *Bol. Ent. Venezolana*, 6: 48-50, figs. 3-4; 1947.

Rancho Grande, July 25, 1948 (Beebe-Fleming); migrant No. 481374. The type was taken at this station on August 24, 1944, by Lichy. Still known only from the type locality.

52. *Shannonomyia lathraea* (Alexander, 1926).

*Pilaria lathraea* Alexander; *Ann. Ent. Soc. America*, 19: 386-387; 1926.

Rancho Grande, May 9, 1948; a broken ♂, taken over a pool of water by a steep mossy

rock cliff. Type from San Lorenzo Mt., Colombia, taken December 13, 1922. Known hitherto only from Colombia.

53. *Shannonomyia providens*, sp. n.

Mesonotal praescutum light brown with three darker stripes, the median one more evident; antennae short, dark brown; femora and tibia obscure yellow, the tips weakly infuscated; wings with a weak brown tinge, restrictedly patterned with darker; vein  $R_2$  a short distance before fork of  $R_{3+4}$ ; male hypopygium with the tergal lobes truncate, separated by a broad U-shaped notch; outer dististyle and gonapophysis bidentate.

Male: Length about 4.5-5 mm.; wings 4.8-5.5 mm.; antenna about 0.9-1 mm.

Female: Length about 5.5 mm.; wing 6.2 mm.

Rostrum dark brown, gray pruinose; palpi black. Antennae short, dark brown; flagellar segments oval, shorter than the verticils. Head gray, somewhat clearer gray on front; a narrow blackish central line on posterior vertex; anterior vertex about two and one-half times the diameter of scape.

Pronotum gray. Mesonotal praescutum light brown, the surface pruinose; three fairly evident brown stripes, the lateral pair less distinct, crossing the suture onto the scutal lobes; posterior sclerites of notum brownish-gray. Pleurotergite and dorsal part of pleura brownish-gray, the ventral pleurites and sternum light yellow. Halteres dusky, the large knobs still more darkened. Legs with the coxae and trochanters pale yellow, the fore coxae a trifle more darkened; femora and tibiae obscure yellow, the tips weakly infuscated; tarsi brownish-yellow, the terminal segments darker. Wings (Text-fig. 19) with a weak brownish tinge, the prearcular and costal fields more yellowed; a restricted darker brown pattern, including the small oval stigma and vague seams over the cord, outer end of cell 1st  $M_2$  and origin of  $R_s$ , best indicated by a slight deepening in color of the veins. Venation:  $Sc$  moderately long,  $Sc_1$  ending about opposite three-fourths to four-fifths  $R_s$ ,  $Sc_2$  a short distance from its tip;  $R_s$  relatively long, about one-third longer than  $R_{2+3+4}$ ; vein  $R_2$  a short distance before fork of  $R_{3+4}$ ; vein  $R_4$  long, approximately three times  $R_3$ ; cell 1st  $M_2$  a little longer than vein  $M_4$ ;  $m-cu$  shortly beyond the fork of  $M$ .

Abdominal tergites brown, with a darker brown subterminal ring involving segments six and seven, segments eight and nine more yellowed, the styli dark; basal sternites yellow. Male hypopygium (Text-fig. 25) with the tergal lobes, 9t, truncated, separated by a broad U-shaped notch. Outer dististyle,  $d$ , unequally bidentate at apex, the tip blackened; outer surface of style with long setae. Inner dististyle shorter, the outer surface with abundant erect setae. Gonapophysis,  $g$ , bidentate, the outer spine longest.

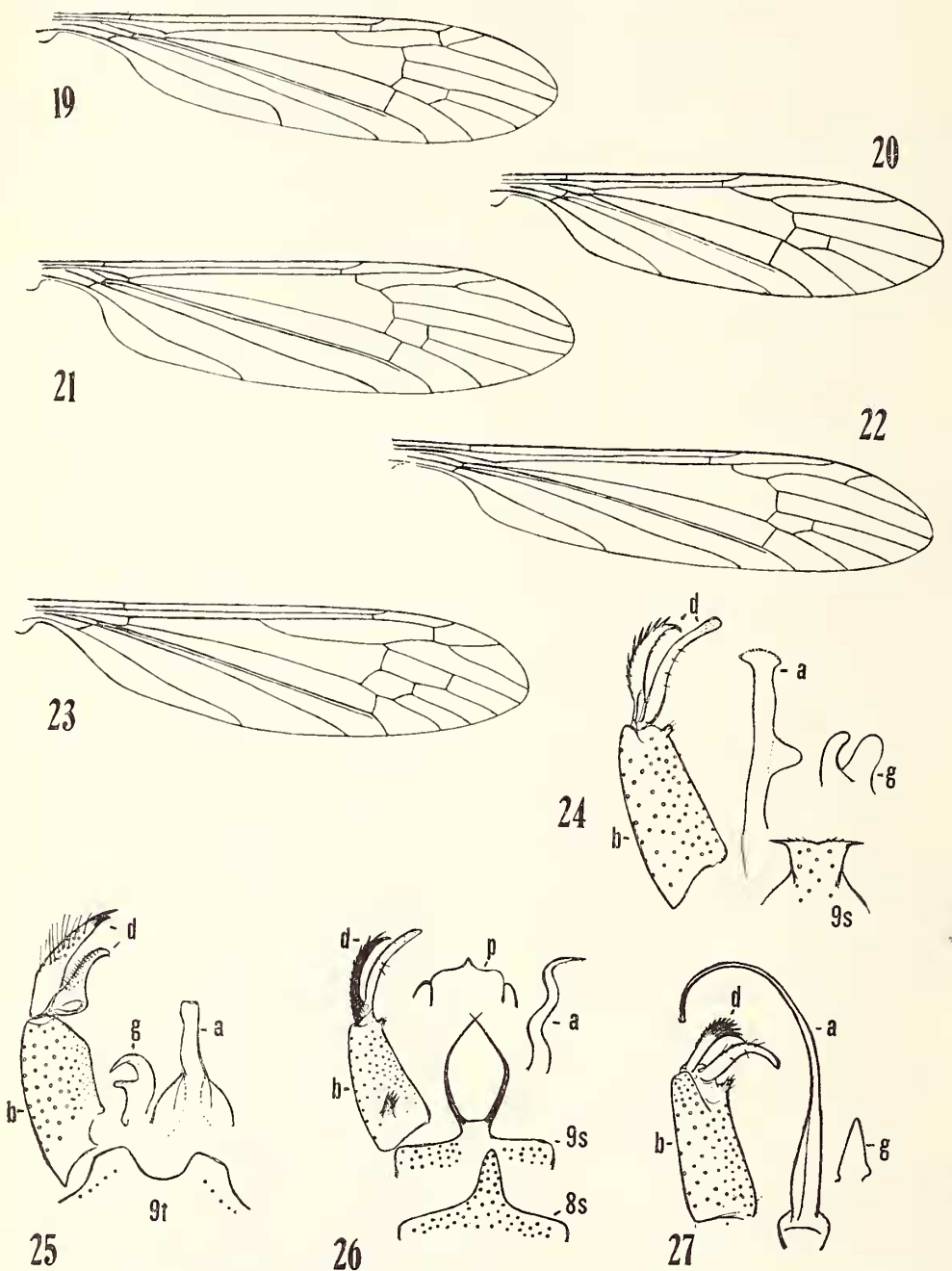
Holotype, ♂, Rancho Grande, June 17, 1946

(Beebe-Fleming). Allotopotype, ♀, July 22, 1948; migrant No. 481365, in copula with a paratype. Paratopotypes, 1 broken ♂, with allotype; 1 ♂, July 17, 1948.

The present fly is most similar in its general appearance to species such as *Shannonomyia adumbrata* Alexander and *S. protuber-*

*ans* Alexander, differing in the coloration of the body and wings and in the structure of the antennae and the male hypopygium.

The tropical American species of *Shannonomyia* have been recorded in a paper by the writer (*Rev. de Entomologia*, 19: 518-523, figs. 8, 9, 11-13; 1948).



TEXT-FIGS. 19-27. (Symbols: a, aedeagus; b, basistyle; d, dististyles; g, gonapophysis; s, sternite; t, tergite). 19—*Shannonomyia providens*, sp. n.; venation. 20—*Atarba (Atarba) quasimodo*, sp. n.; venation. 21—*Atarba (Ischnothrix) brevisector* Alexander; venation. 22—*Atarba (Ischnothrix) spinituber*, sp. n.; venation. 23—*Hexatoma (Eriocera) beebeana*, sp. n.; venation. 24—*Atarba (Atarba) quasimodo*, sp. n.; male hypopygium. 25—*Shannonomyia providens*, sp. n.; male hypopygium. 26—*Atarba (Ischnothrix) spinituber*, sp. n.; male hypopygium. 27—*Atarba (Atarba) cincticornis thamia*, subsp. n.; male hypopygium.



**Hexatoma Latreille.**54. *Hexatoma (Eriocera) beebeana*, sp. n.

Size relatively small (wing, male, 9 mm.); general coloration black, the praescutum and scutal lobes with metallic blue reflections; fore and middle femora with about the basal third yellow, the remainder blackened, enclosing a narrow obscure yellow subterminal ring; posterior femora clear yellow basally, the tip conspicuously blackened; wings with the restricted ground whitened, much restricted by broad brown seams to the veins; cell  $R_3$  unusually short, vein  $R_2$  before the cell subequal in length to vein  $R_{3+4}$ ; a supernumerary crossvein at near midlength of cell  $R_5$ ; *m-cu* close to midlength of cell 1st  $M_2$ .

Male: Length about 10 mm.; wing 9 mm.; antenna about 2.5 mm.

Rostrum brownish-black, yellow pollinose; palpi black, the first segment paler. Antennae (male) short, 7-segmented; scape and pedicel dark brown, flagellum black; first flagellar segment exceeding the combined second and third segments and a little shorter than the fourth; fourth segment nearly three times as long as the fifth. Head dark brown, sparsely pollinose on genae; vertical tubercle orange, deeply split medially.

Pronotal scutum and pleura heavily light gray pruinose, the scutellum brownish-black. Mesonotal praescutum and the scutal lobes black with distinct metallic blue reflections; remainder of notum intensely black, very sparsely pollinose, the pleurotergite more heavily so; praescutal vestiture very short and sparse. Pleura black, sparsely gray pruinose, more heavily so on the pteropleurite; dorsopleural membrane brownish-black. Halteres black. Legs with the coxae black, heavily gray pruinose; trochanters black; fore and middle femora with about the basal third yellow, the remainder blackened, enclosing a narrow and inconspicuous obscure yellow subterminal ring; tibiae brown, the tip and the tarsi more blackened; posterior femora clear yellow basally, the tip conspicuously blackened, with vague indications of a broad brownish-yellow subterminal ring, the narrow area before the apex clearer yellow; tibiae and tarsi black. Wings (Text-fig. 23) with the ground whitened, much restricted by broad brown seams to the veins; costal border and bases of cells  $R$  and  $M$ , together with the apex, more extensively and uninterruptedly brown; both Anal cells uniformly paler brown; veins brown, arculus conspicuously light yellow. Outer radial veins with abundant macrotrichia, these greatly reduced in number to virtually lacking in the medial field. Venation:  $Sc_1$  ending about opposite the fork of  $Rs$ ; vein  $R_{3+4}$  subequal to vein  $R_2$ , both a little shorter than  $R_{1+2}$ , cell  $R_3$  thus unusually short; a supernumerary crossvein at near midlength of cell  $R_5$ ; *m-cu* close to midlength of cell 1st  $M_2$ .

Abdominal tergites black, basal sternites medium brown, the outer ones intensely blackened; hypopygium small, obscure brownish-yellow.

Holotype, ♂, Rancho Grande, March 26, 1945 (Beebe-Fleming).

This striking crane-fly is respectfully dedicated to Dr. William Beebe. There are no very close allies so far made known and the fly will be readily recognized. The presence of supernumerary crossveins in the wings is very uncommon in species of *Eriocera*, in the neotropical fauna including only *Hexatoma (Eriocera) acunai* Alexander, of Cuba, among the described species. This latter fly has the cross-vein in cell  $R_4$  instead of in cell  $R_5$ , as in the present species.

55. *Hexatoma (Eriocera) bifurcata* Alexander, 1947.

*Hexatoma (Eriocera) bifurcata* Alexander; *Bol. Ent. Venezolana*, 6: 97-99; 1947.

Rancho Grande, July 10, 1945, ♀; May 6, 1946, ♀; July 9, 1946, ♂. The type was from Choroní, Km. 25, taken September 12, 1945, by Lichy. Still known only from the state of Aragua, Venezuela.

56. *Hexatoma (Eriocera) candidipes* (Alexander, 1923).

*Penthoptera candidipes* Alexander; *Ent. News*, 34: 20; 1923.

Rancho Grande, July 18, 1946. Type from Tachira, Venezuela, taken April 9, 1920, by the Williamsens and Ditzler. Still known only from Venezuela.

The tropical American species of *Hexatoma (Eriocera)* have been discussed by the writer in another paper (*Rev. de Entomologia*, 19: 528-535, figs. 16-20; 1948).

**Atarba Osten Sacken.**57. *Atarba (Ischnothrix) spinituber*, sp. n.

Color variable, the mesonotum ranging from reddish-brown to dark brown; antennae (male) elongate, exceeding the wing in length, the segments with unusually long erect setae scattered over their whole length; wings with a weak brownish tinge;  $Sc$  short;  $Rs$  short, weakly angulated; vein  $R_3$  short, arcuated, less than one-third the petiole of cell  $R_3$ ; male hypopygium with the appendage of the eighth sternite an elongate lobe, of the ninth sternite a conspicuous lyriform structure; basistyle on mesal face near proximal end with a cylindrical lobe bearing spinous setae; aedeagus sinuous to the acute apex.

Male: Length about 5.5-5.7 mm.; wing 6-6.2 mm.; antenna about 6-7 mm.

Rostrum yellow pollinose; palpi brownish-yellow. Antennae (male) elongate, exceeding the wing in length, pale brown; flagellar segments very elongate-cylindrical, with dense erect pale setae, these unusually long and conspicuous, the longest approximately two-thirds the length of the segment; in addition to the longest vestiture there is an even more abundant shorter type of seta that is about one-fourth the segment. Head dark brownish gray.

Thorax of type dark reddish-brown to brown, of the paratype much darker brown

to brownish-black. Pleura of type light yellow, of the paratype more brownish-yellow, sparsely pruinose. Halteres infuscated, the base of stem narrowly pale yellow. Legs with the coxae and trochanters yellow; remainder of legs yellowish-brown (type) to brownish-black (paratype). Wings (Text-fig. 22) with a weak brownish tinge, the oval stigma darker brown, inconspicuous; veins brown, those near wing base a trifle brighter. Venation: *Sc* short, *Sc*<sub>1</sub> ending just beyond origin of *Rs*, *Sc*<sub>2</sub> before this origin; *Rs* short, weakly angulated at origin; vein *R*<sub>3</sub> short, arcuated, less than one-third the petiole of cell *R*<sub>3</sub>; cell *R*<sub>2</sub> at margin about one-third to two-fifths the extent of cell *R*<sub>3</sub>; *m-cu* at near one-third the length of cell 1st *M*<sub>2</sub>.

Abdomen yellowish-brown to brown, the subterminal segments still darker to form a ring; hypopygium and sternites more yellowed. Male hypopygium (Text-fig. 26) with the appendage of the eighth sternite, 8s, a depressed-flattened elongate lobe, narrowed to obtuse tip, with setae over the whole surface. Appendage of ninth sternite, 9s, profoundly lyriform, the branches unusually long and slender, near apex with weak retrorse points or roughenings. Basistyle, *b*, on mesal face of proximal half with a finger-like lobe that is tufted with strong black spinous setae, those at apex even stouter. Outer dististyle, *d*, a slender blackened gently curved rod, provided with scattered spines along the outer face, the terminal one subequal to the apex and slightly more slender. Inner dististyle subequal in length but extending beyond the dorsal dististyle due to its place of insertion, gently arcuated. Aedeagus, *a*, sinuous to the acute apex.

Holotype, ♂, Rancho Grande, May 5, 1945 (Beebe-Fleming). Paratopotypes, ♂♂, May 7, 1945, May 27, 1948.

The closest relative of the present fly is *Atarba* (*Ischnothrix*) *breviselector* (Alexander), described from the cloud forest zone of the Silla de Caracas, 1900 meters. This is a larger fly (wing, ♀, nearly 8 mm.) that is still known only from the female sex. Besides the large size, this species has the antennal flagellum black, with short vestiture, the latter undoubtedly a sexual character. The venational details (Text-fig. 21) are distinct, particularly the outer radial field where vein *R*<sub>3</sub> is normally oblique and relatively long, exceeding one-half the length of the petiole of cell *R*<sub>3</sub>; cell *R*<sub>2</sub> at margin scarcely one-third that of cell *R*<sub>3</sub>.

The tropical American species of *Atarba* have been considered by the writer in another paper (*Rev. de Entomologia*, 19: 536-552, figs. 21-35; 1948).

58. *Atarba* (*Atarba*) *cincticornis* *thamia*, subsp. n.

Male: Length about 5 mm.; wing 5.5 mm.; antenna about 4.5 mm.

Antennal flagellum almost uniformly darkened, only the incisures of the more proximal segments restrictedly yellow; on outer

segments the amount of pale color is somewhat increased; basal flagellar segments long-cylindrical, with conspicuous outspreading verticils and erect setae; outer segments progressively much shorter, the outer four or five scarcely more than four times as long as the diameter across base. In typical *cincticornis*, the antennae are longer, the segments more evidently bicolored, their bases distinctly thicker than their tips.

Mesonotum almost uniformly dark brown, the postnotum and pleura more pruinose. Halteres infuscated. Legs yellow, the outer tarsal segments darker. Wings with a weak brownish tinge, the costal border more yellowed; stigma small; veins pale brown, *Sc* more yellowed. Venation: *Sc*<sub>1</sub> ending virtually opposite the origin of *Rs*, *Sc*<sub>2</sub> a short distance from its tip; *Sc*<sub>1</sub> nearly as long as the short *Rs*, the latter subequal to the basal section of *R*<sub>5</sub>; cell 1st *M*<sub>2</sub> nearly rectangular in outline, the second section of *M*<sub>1+2</sub> approximately twice the basal section; *m-cu* about one-third its length beyond the fork of *M*. In typical *cincticornis*, *Rs* is longer; cell 1st *M*<sub>2</sub> very small and short, the second section of vein *M*<sub>1+2</sub> being subequal to or actually shorter than the basal section; *m-cu* at or close to the fork of *M*.

Abdomen brown, with a dark brown subterminal ring; hypopygium yellow. Male hypopygium (Text-fig. 27) generally as in the typical race, particularly as regards the outer dististyle and the aedeagus. Outer dististyle, *d*, dilated on outer half, the outer margin with conspicuous black spines, those at near midlength of the group more crowded and in double rows. Inner dististyle with conspicuous setae, especially along the outer margin. Gonapophysis simple, appearing as an elongate blade, the top subacute. Aedeagus, *a*, very long and slender, longer than the combined basistyle and dististyles, the apex not or scarcely expanded. In typical *cincticornis*, the outer dististyle has the central spines shorter and arranged in several rows. Inner dististyle shorter, without conspicuous setae. Gonapophysis even more slender and elongate.

Holotype, ♂, Rancho Grande, June 26, 1946 (Beebe-Fleming).

The discovery of more material will probably result in elevating the present fly to full specific rank. Typical *cincticornis* Alexander is known from British Guiana and Ecuador.

59. *Atarba* (*Atarba*) *quasimodo*, sp. n.

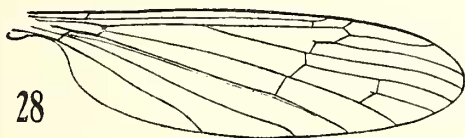
Thorax almost uniformly brownish-yellow, unpatterned; antennae (male) about one-third the length of wing, flagellum black; legs yellow; wings with a strong yellow tinge, stigma very pale brown, inconspicuous; *Sc*<sub>1</sub> ending about opposite one-third the length of *Rs*; cell 1st *M*<sub>2</sub> pentagonal in outline; male hypopygium with the outer lateral angles of the appendage of the ninth sternite produced into very slender spines; outer dististyle with about nine spines on outer margin; gonapophyses appearing as bilobed smooth blades; aedeagus elongate, stout, the

apex a little dilated, on margin at near mid-length with a very conspicuous obtuse tubercle or hump.

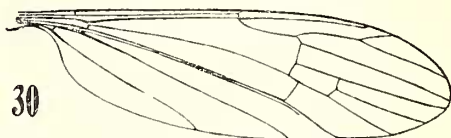
Male: Length about 5 mm.; wing 4.5-4.6 mm.; antenna about 1.4-1.5 mm.

Rostrum dark brown; palpi more reddish-brown. Antennae (male) of moderate length,

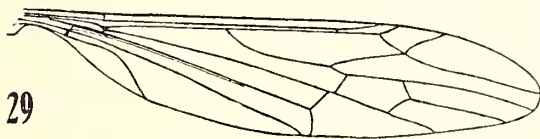
about one-third the length of the wing; flagellar segments long-subcylindrical, exceeding the verticils, the latter stout, about four per segment; the entire segment with a dense erect pale pubescence, these approximately one-half the length of the verticils. Head dark gray; anterior vertex broad.



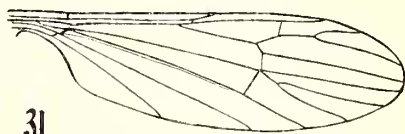
28



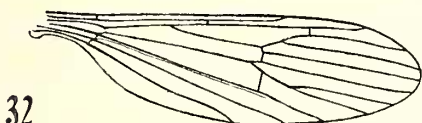
30



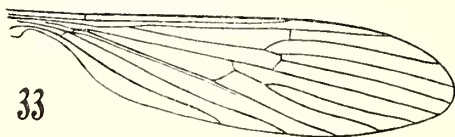
29



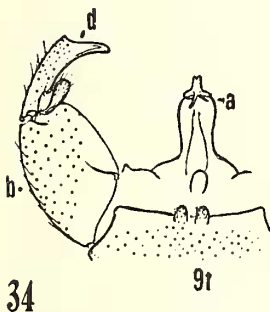
31



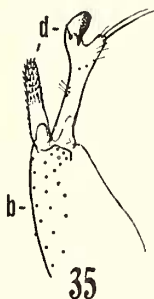
32



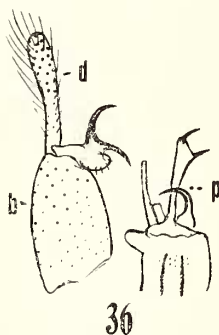
33



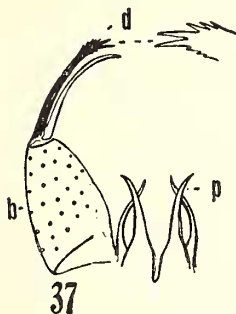
34



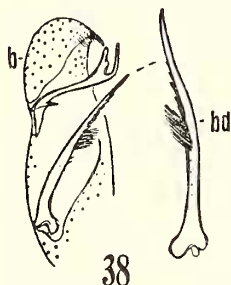
35



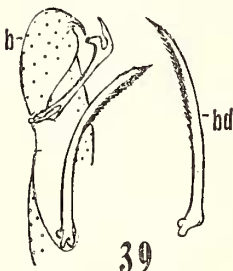
36



37



38



39

TEXT-FIGS. 28-39. (Symbols: *a*, aedeagus; *b*, basistyle; *bd*, basal dististyle; *d*, dististyle; *p*, phallosome; *t*, tergite). 28—*Sigmatomera beebei*, sp. n.; venation. 29—*Trentepohlia (Paramongoma) fuscolumbata*, sp. n.; venation. 30—*Gonomyia (Gonomyia) spiculistyla*, sp. n.; venation. 31—*Erioptera (Empeda) abitaguae* Alexander; venation. 32—*Erioptera (Erioptera) beebeana*, sp. n.; venation. 33—*Molophilus (Molophilus) compactus*, sp. n.; venation. 34—*Sigmatomera beebei*, sp. n.; male hypopygium. 35—*Gonomyia (Gonomyia) spiculistyla*, sp. n.; male hypopygium. 36—*Gonomyia (Lipophleps) vindex* Alexander; male hypopygium. 37—*Erioptera (Erioptera) beebeana*, sp. n.; male hypopygium. 38—*Molophilus (Molophilus) compactus*, sp. n.; male hypopygium. 39—*Molophilus (Molophilus) flemingi*, sp. n.; male hypopygium.

Thorax almost uniformly brownish-yellow, unpatterned, the pleura more yellowed. Halteres with stem yellow, knobs weakly darkened. Legs with the coxae and trochanters reddish-yellow; remainder of legs yellow, the terminal tarsal segments more infuscated. Wings (Text-fig. 20) with a strong yellow tinge, the prearcular and costal fields clearer yellow; stigma oval, very pale brown, inconspicuous; veins yellow. Venation: *Sc* moderately long, *Sc*<sub>1</sub> ending about opposite one-third the length of *Rs*, *Sc*<sub>2</sub> faint, a short distance before this origin; branches of *Rs* very gently divergent; cell 1st *M*<sub>2</sub> pentagonal, less than one-half the basal section of *M*<sub>3</sub>; *m-cu* variable in position, from a short distance before the fork of *M*, as illustrated, to a little beyond this fork.

Abdomen light brown, the bases of the segments paler; subterminal segments dark brown to produce a conspicuous ring; hypopygium yellow. Male hypopygium (Text-fig. 24) with the appendage of the ninth sternite, 9s, short and broad, the caudal margin nearly truncate, very slightly emarginate at the midline; outer lateral angles produced laterad into unusually slender spines; surface of appendage with relatively few coarse setae. Outer dististyle, *d*, relatively slender, the outer margin with teeth over virtually the whole length, totalling nine or ten, the more basal ones smaller and appressed, the outer spines longer and more conspicuous; terminal spine subequal to the subterminal one and slightly more curved; on ventral margin before apex with three or four delicate spinules. Inner dististyle a little longer than the outer style, appearing as a darkened slender rod, gently curved, the obtuse tip a little enlarged. Gonapophysis, *g*, appearing as bilobed smooth blades. Aedeagus, *a*, elongate, stout, the apex a little dilated and flaring; on margin at near midlength with a very conspicuous obtuse dilation or tubercle.

Holotype, ♂, Rancho Grande, May 12, 1945 (Beebe-Fleming). Paratopotype, ♂, pinned with type.

The present fly is quite distinct in the structure of the male hypopygium. In the prominent tubercle on the aedeagus, it suggests *Atarba (Atarba) tuberculifera* Alexander, but is an entirely different fly, being one of the smallest members of the genus whereas *tuberculifera* is one of the largest.

#### *Elephantomyia* Osten Sacken.

60. *Elephantomyia (Elephantomyia) setulistyla* Alexander, 1938.

*Elephantomyia (Elephantomyia) setulistyla* Alexander; *Ann. Mag. Nat. Hist.*, (11) 1: 351-352; 1938.

Rancho Grande, May 12-July 8, 1946; July 17, 1948. The type was from Abitagua, Ecuador, 1200 meters, April 7, 1937, collected by Clarke-Macintyre. Known only from Ecuador and Venezuela.

The tropical American species of *Elephantomyia* have been listed in a further paper

by the writer (*Rev. de Entomologia*, 19: 552-556, figs. 27, 28, 36; 1948).

#### ERIOPTERINI.

#### *Sigmatomera* Osten Sacken.

61. *Sigmatomera beebei*, sp. n.

General coloration reddish-yellow, unpatterned; halteres and legs yellow; wings uniformly rich yellow, all the veins deep yellow; cell 1st *M*<sub>2</sub> elongate, subequal in length to the distal section of vein *M*<sub>1+2</sub>; male hypopygium with the dorsal lobules of the ninth tergite very small, suboval in outline; inner dististyle stout, the lobe on its outer margin very low and obtuse; aedeagus without elongate spines at apex.

Male: Length about 14 mm.; wing 14.5 mm.

Head broken. Prothorax and mesothorax almost uniformly reddish-yellow, the praescutum with three such stripes on a slightly more yellowed ground. Halteres uniformly yellow. Legs yellow, only the terminal tarsal segment brown. Wings (Text-fig. 28) uniformly rich yellow, the prearcular and costal borders more saturated yellow; all veins deep yellow. Venation: *Sc*<sub>1</sub> ending about opposite one-third the length of the outer or angulated section of *R*<sub>2+3+4</sub>, *Sc*<sub>2</sub> opposite this angulation; *R*<sub>2+3+4</sub> angulated just before midlength, with a long spur jutting basad into cell *R*<sub>1</sub> at the angle; cell 1st *M*<sub>2</sub> elongate, widened outwardly, subequal in length to the distal section of vein *M*<sub>1+2</sub>; basal section of vein *M*<sub>3</sub>, with a weak spur jutting basad into cell 1st *M*<sub>2</sub>; *m-cu* at or close to the fork of *M*.

Abdomen brownish-yellow, hypopygium yellow. Male hypopygium (Text-fig. 34) with the dorsal lobules of the ninth tergite, 9t, very small, suboval in outline, separated by a space that is subequal to the diameter of either lobe. Inner dististyle stout, the lobe on outer margin very low and obtuse. Aedeagus, *a*, stout, terminating in a small central point, not produced into elongate spines, as common in the genus; if present, these latter are microscopic.

Holotype, ♂, Rancho Grande, May 2, 1945 (Beebe-Fleming).

I am very pleased to name this species for Dr. William Beebe. The fly is most similar to other species with unpatterned wings, such as *Sigmatomera flavipennis* Osten Sacken (genotype) and *S. occulta* Alexander. It differs from these and from all other known forms in the uniformly bright yellow veins and in the structure of the male hypopygium. In the latter respect, the species differs very markedly from *flavipennis*, which has the inner dististyle long and slender. The species that have this style most like that in the present fly include *S. occulta* and *S. shannoniana* Alexander, which differ evidently in the pattern of the wings and in the details of the hypopygium, including the tergite, inner dististyle and aedeagus.

The tropical American species of *Sigmatomera* have been listed in another report by

the writer (*Rev. de Entomologia*, 18: 68-69, figs. 3, 4; 1947).

***Trentepohlia* Bigot.**

62. ***Trentepohlia (Paramongoma) fuscolimbata*, sp. n.**

Mesonotum and pleura almost uniformly reddish-brown; legs medium brown, the tip of the tibia and the tarsi paling to cream-yellow; wings grayish-subhyaline; stigma relatively large and conspicuous, subcircular to short-oval in outline; veins of the proximal three-fourths of wing extensively seamed with paler brown; vein  $R_3$  oblique.

Female: Length about 10 mm.; wing 8.2 mm.

Rostrum yellow. Antennae with the scape and pedicel dark brown; flagellum broken. Head brown; anterior vertex reduced to a linear strip that is subequal in width to a single row of ommatidia.

Cervical region dark brown above, paler on sides. Pronotum dark brown above, paling to yellowish-brown laterally. Mesonotum and pleura almost uniformly reddish-brown, the scutellum and especially the postnotum sparsely gray pruinose. Halteres pale. Legs with the coxae reddish-brown; trochanters yellow; legs medium brown, the genua, especially the tibial base, very narrowly and almost insensibly whitened; tip of tibia and the tarsi paling to cream-yellow. Wings (Text-fig. 29) grayish-subhyaline; stigma relatively large and conspicuous, subcircular to short-oval; veins before level of outer end of cell 1st  $M_2$  extensively seamed with paler brown, such cloudings on  $R_s$ ,  $R_{2+3+4}$ , cord, outer end of cell 1st  $M_2$ , outer end of  $M$  and  $M_{3+4}$ , distal half of  $Cu$ , and at and near the bases of the Anal cells; wing tip even more vaguely suffused; veins brownish-yellow, somewhat clearer yellow in the outer costal field. Venation: Vein  $R_3$  more oblique than in *suffuscipes*; cell 1st  $M_2$  broader;  $m-cu$  only a short distance before the fork of  $M$ .

Abdominal tergites dark brown, sternites yellow; genital shield brownish-yellow. Cerci relatively long and very slender.

Holotype, ♀, Rancho Grande, May 11, 1945 (Beebe-Fleming).

The most similar regional species is *Trentepohlia (Paramongoma) suffuscipes* Alexander, which differs in the coloration of the body, legs and wings, as well as in slight details of the venation.

The tropical American species of *Trentepohlia* have been considered earlier by the writer (*Rev. de Entomologia*, 18: 69-72, figs. 5-7; 1947).

***Teucholabis* Osten Sacken.**

63. ***Teucholabis (Teucholabis) anthracina* Alexander, 1921.**

*Teucholabis anthracina* Alexander; *Proc. Acad. Nat. Sci. Philadelphia*, for 1921: 85-86; 1921.

Rancho Grande, May 12, 1945; 1 ♀ only. The type was from the Napo River, Ama-

zonian Peru, taken June 14, 1920, by Parish. The fly was known hitherto from Ecuador and Peru. Despite the lack of the male sex I can see no reason to question the determination.

The tropical American species of *Teucholabis* were discussed by the writer in an earlier report (*Rev. de Entomologia*, 17: 375-400, figs. 1-14; 1946).

***Gnophomyia* Osten Sacken.**

64. ***Gnophomyia (Gnophomyia) digitiformis* Alexander, 1941.**

*Gnophomyia (Gnophomyia) digitiformis* Alexander; *Journ. N. Y. Ent. Soc.*, 49: 144-145; 1941.

Rancho Grande, March 27; April 8-24; June 18; July 1-18; August 16, 1946. Type from San Esteban, Venezuela, taken December 19, 1939, by Anduze. The species is still known only from Venezuela.

The neotropical species of *Gnophomyia* have been discussed briefly in another paper by the writer (*Rev. de Entomologia*, 18: 72-80, figs. 8-12; 1947).

***Neognophomyia* Alexander.**

65. ***Neognophomyia monophora* Alexander, 1941.**

*Neognophomyia monophora* Alexander; *Journ. N. Y. Ent. Soc.*, 49: 146-147; 1941.

Rancho Grande, April 24, 1948 (No. 4872); July 25, 1948 (No. 481374), migrant series. The types were from San Esteban, Venezuela, December 28, 1939, Anduze, and Borburata, Venezuela, 500 meters, March 10-15, 1940, Anduze. Still known only from Venezuela.

The tropical American species of *Neognophomyia* are listed by the writer (*Rev. de Entomologia*, 18: 81-82, fig. 16; 1947).

***Gonomyia* Meigen.**

66. ***Gonomyia (Gonomyia) spiculistyla*, sp. n.**

Mesonotum chiefly medium brown; scutellum obscure yellow; legs brownish-black; wings with a weak dusky tinge;  $Sc_1$  ending opposite origin of  $R_s$ ,  $R_{2+3+4}$  subequal to  $R_s$ ; male hypopygium with the outer dististyle a simple stout rod, the surface with abundant short spines or spicules, without setae.

Male: Length about 4 mm.; wing 4.2 mm.

Head broken. Pronotum brown, the pretergites light yellow. Mesonotum chiefly medium brown, the praescutum darker medially; scutal lobes dark brown; median region of scutum and the scutellum obscure yellow, the latter restrictedly darkened at base; postnotum brownish-gray, the lateral borders of the mediotergite yellow; pleurotergite paler and pruinose. Pleura variegated dark reddish-brown and yellow, the latter color producing a vague stripe on the dorsal sternopleurite and pteropleurite. Halteres

dark brown. Legs with the coxae dark reddish-brown; trochanters yellow; remainder of legs brownish-black. Wings (Text-fig. 30) with a weak dusky tinge, the stigmal area slightly darker, ill-delimited and vague; veins dark brown. Venation:  $Sc_1$  ending opposite origin of  $Rs$ ,  $Sc_2$  at its tip;  $R_{2+3+4}$  subequal to or a trifle longer than  $Rs$ ; vein  $R_3$  oblique;  $r-m$  long, subequal to  $m-cu$ , the latter at near one-third the length of cell 1st  $M_2$ .

Abdomen dark brown. Male hypopygium with the dististyles (Text-fig. 35, *d*) distinctive; outer style a simple stout rod, its surface densely covered with short spines or triangular points to produce a spiculate appearance, without setae. Inner dististyle appearing as a straight rod, before apex on outer margin with a strong arm that terminates in a flattened black plate, strongly recurved, its lower apical angle further produced into a point; main axis of style bearing the usual two strong fasciculate setae, additional to a few other normal bristles. Phallosome broken and in part lost before mounting; a single strong slender spine persists in the slide mount; from a cursory preliminary examination made before the loss of this part, it is believed that there was a second spine and a further elongate pale rod that was expanded at its apex into a triangular blade, the apex shallowly emarginate.

Holotype, ♂, Rancho Grande, July 10, 1946 (Beebe-Fleming).

While similar in its general appearance to species such as *Gonomyia* (*Gonomyia*) *juarezi* Alexander, *G. (G.) methodica* Alexander, and others, the present fly is entirely distinct in the structure of the male hypopygium, including both the dististyles and the phallosome.

67. *Gonomyia* (*Lipophleps*) *vindex* Alexander, 1941.

*Gonomyia* (*Lipophleps*) *vindex* Alexander; *Journ. N. Y. Ent. Soc.*, 49: 142-143; 1941.

Rancho Grande, May 12, 1945. The type was from Borburata, Venezuela, 500 meters, taken March 15, 1940, by Anduze. Still known only from Venezuela. In the present specimen, the male hypopygium (Text-fig. 36), while being generally similar to that of the type, differs in slight details, especially the longest element of the phallosome, *p*, where the outer spine is longer and more conspicuous than in the type.

68. *Gonomyia* (*Paralipophleps*) *lemniscata* Alexander, 1931.

*Gonomyia* (*Lipophleps*) *lemniscata* Alexander; *Ann. Ent. Soc. America*, 24: 634-635; 1931.

*Gonomyia* (*Paralipophleps*) *lemniscata* Alexander; *Rev. de Entomologia*, 18: 97-98; 1947.

Rancho Grande, July 10, 1946. The types were from Vista Nieve, Mount Santa Marta.

Colombia, 5,000 feet, August 8, 1926, taken by Fred W. Walker, and from Jaragua, Santa Catharina, Brazil, taken September 20, 1929. The species is known from Colombia, Venezuela and southeastern Brazil.

The tropical American species of *Gonomyia* have been discussed in a paper by the writer (*Rev. de Entomologia*, 18: 83-99, figs. 17-29; 1947).

#### *Erioptera* Meigen.

69. *Erioptera* (*Erioptera*) *beebeana*, sp. n.

Allied to *multiannulata*; general coloration of thorax and abdomen dark brown, the thoracic pleura with a longitudinal silvery white stripe; femora with three dark brown and three china-white rings; tibiae and basitarsi variegated with darkened annuli; wings with a strong light brown tinge, unpatterned; male hypopygium with both dististyles slender, the outer one terminating in several strong spines; inner styles very slender; phallosome with the apophyses bispinous.

Male: Length about 2.5 mm.; wing 3 mm.

Rostrum brown; palpi black. Antennae black throughout; flagellar segments oval, with very long verticils. Head above gray.

Pronotum and mesonotum almost uniformly dark brown, the surface with a very sparse pruinosity; praescutum with two very faintly indicated darker brown stripes; anterior pretergites obscure whitish, the region before the wing root pale. Pleura and pleurotergite dark brown, pruinose, with a narrow silvery white longitudinal stripe that is bordered both above and below by a slightly narrower more blackened line. Halteres clear light yellow. Legs with the fore coxae dark brown, the middle pair a little paler; posterior coxae and trochanters testaceous yellow; femora conspicuously ringed with dark brown and china white, there being three dark rings and three narrower white ones, the last terminal; tibiae yellow with a narrow nearly basal dark ring and a more extensive subterminal one, the latter a little less than the pale tip; tarsi yellow, the proximal end of the basitarsi narrowly darkened; two outer tarsal segments infuscated; vestiture of legs including setae and normal linear scales. Wings (Text-fig. 32) with a strong light brown tinge, the prearcular and costal regions a trifle more brightened; veins brownish-yellow, the vestiture pale brown. Venation: Petiole of cell  $M_3$  from one-third to one-half longer than  $m-cu$ ; vein 2nd  $A$  gently sinuous on nearly the outer half.

Abdomen, including hypopygium, dark brown, the ninth segment more yellowed. Male hypopygium (Text-fig. 37) with both dististyles, *d*, slender, terminal in position; outer style blackened, at apex with about three strong spines, with other smaller denticles back from tip, inner style subequal in length but even more slender, glabrous, the tip acute, near apex with two or three pale punctures. Phallosome, *p*, with powerful horn-colored spinous apophyses, one pair on either side, the strong inner spines nearly

parallel to one another, their tips gently out-curved, acute; lateral arms approximately equal in length but a little more slender and sinuous.

Holotype, ♂, Rancho Grande, July 25, 1948 (Beebe-Fleming); migrant series.

This attractive crane-fly is named in honor of Dr. William Beebe. The most similar regional species include *Erioptera* (*Erioptera*) *multiannulata* Alexander, *E. (E.) polydonta* Alexander, and *E. (E.) polytricha* Alexander, all of which have the male hypopygium entirely distinct in structure.

The neotropical species of *Erioptera* have been considered in an earlier report by the writer (*Rev. de Entomologia*, 18: 328-337, figs. 10-17; 1947).

70. *Erioptera* (*Erioptera*) *celestis* Alexander, 1940.

*Erioptera* (*Erioptera*) *celestis* Alexander; *Ann. Mag. Nat. Hist.*, (11) 5: 294-296; 1940.

Rancho Grande, July 25, 1948 (Beebe-Fleming); migrant, No. 481374. The type was from Abitagua, Ecuador, 1200 meters, taken April 5, 1937, by Clarke-Macintyre. Known only from Ecuador and Venezuela.

71. *Erioptera* (*Empeda*) *abitaguai* Alexander, 1941.

*Erioptera* (*Empeda*) *abitaguai* Alexander; *Ann. Mag. Nat. Hist.*, (11) 8: 131-132; 1941.

Rancho Grande, May 12, June 11-28, July 8-10, 1946.

The type was from Abitagua, Ecuador, 1100 meters, taken September 1, 1939, by Clarke-Macintyre. Known only from Ecuador and Venezuela. The wing venation is shown (Text-fig. 31).

***Molophilus* Curtis.**

72. *Molophilus* (*Molophilus*) *compactus*, sp. n.

Belongs to the *plagiatus* group; mesonotum chiefly reddish-brown, unpatterned; antennae (male) relatively long, nearly one-half the length of the body; wings with a strong brownish tinge; male hypopygium with the basal dististyle a slender nearly straight rod that narrows into a long spine, the lower face at near midlength with a compact group of erect setae, beyond this brush with a few strongly appressed spinous points.

Male: Length about 3.2 mm.; wing 4 mm.; antenna about 1.5 mm.

Rostrum and palpi black. Antennae relatively long, nearly one-half the body, black throughout; flagellar segments long-subcylindrical; longest verticils unilaterally distributed, nearly twice as long as the segments; additional shorter erect pale verticils. Head gray.

Pronotum brown, darker laterally; pretergites pale yellow. Mesonotum chiefly reddish-brown, the praescutum unpatterned. Pleura darker brown. Halteres yellow basally, darker beyond, with golden yellow vestiture.

Legs with the coxae and trochanters testaceous yellow; remainder of legs medium brown, the outer tarsal segments more blackened. Wings (Text-fig. 33) with a strong brownish tinge, the prearcular and costal fields slightly more yellowed; veins and macrotrichia brown. Venation;  $R_2$  lying slightly distad of the level of  $r-m$ ; petiole of cell  $M_3$  about one-fourth longer than the slightly sinuous  $m-cu$ ; vein 2nd A long, ending about opposite midlength of  $m-cu$ .

Abdomen brown, the hypopygium brownish-black. Male hypopygium (Text-fig. 38) with the beak of the basistyle,  $b$ , slender. Outer dististyle with the two arms unequal, the more distal one slender. Basal dististyle,  $bd$ , a slender nearly straight rod that narrows into a long spine, on lower face at near midlength with a compact group of erect setae, beyond this brush with a few strongly appressed spinous points. Phallosomic plate unusually small, oval, the surface glabrous.

Holotype, ♂, Rancho Grande, June 28, 1946 (Beebe-Fleming).

The most similar regional species include *Molophilus* (*Molophilus*) *brownianus* Alexander, *M. (M.) capricornis* Alexander, and *M. (M.) paganus* Alexander, all differing from the present fly and among themselves chiefly in the structure of the male hypopygium, particularly of the basal dististyle.

73. *Molophilus* (*Molophilus*) *flemingi*, sp. n.

Belongs to the *plagiatus* group; thorax almost uniformly black; antennae (male) relatively short; halteres yellow; legs black; wings grayish-subhyaline, vaguely cross-banded with pale brown, the bands lying at cord and beyond the arculus; male hypopygium with the basal dististyle a long gently curved rod that terminates in a short spine; lower face of distal half of style with a series of strong appressed spines.

Male: Length about 4 mm.; wing 4.5 mm.; antenna about 1 mm.

Rostrum and palpi black. Antenna (male) relatively short, only about one-fourth the length of body, black throughout; flagellar segments subcylindrical or long-suboval, gradually decreasing in length and diameter outwardly; verticils scattered, much exceeding the segments; remaining vestiture short and inconspicuous. Head gray.

Thorax almost uniformly black; pretergites very narrow, testaceous yellow. Halteres yellow. Legs with the coxae infuscated basally, paling to yellow outwardly; trochanters yellow; femora dark brown, yellow basally; remainder of legs black; fore tibia (male) with a linear glandular swelling. Wings grayish subhyaline, vaguely crossbanded with pale brown, including a band at cord and another across the postarcular region; prearcular field yellow; veins brown, yellow in the more brightened portions. Venation:  $R_2$  in approximate transverse alignment with  $r-m$ ; petiole of cell  $M_3$  a little longer than  $m-cu$ ; vein 2nd A relatively short, ending slightly beyond the posterior end of  $m-cu$ .

Abdomen, including hypopygium, brownish-black to black. Male hypopygium (Text-fig. 39) with the beak of the basistyle, *b*, slender. Outer dististyle elongate, the two arms unequal, the inner long and slender. Basal dististyle, *bd*, a long slender gently curved rod, the terminal spine short and stout; lower face of distal half of style with a series of strong appressed spines, on proximal half more scattered and finally becoming tuberculate; outer face of style with a few small inconspicuous denticles back from apex.

Holotype, ♂, Rancho Grande, June 28, 1946 (Beebe-Fleming).

I take unusual pleasure in naming this distinct fly for Mr. Henry Fleming, Entomologist of the Department of Tropical Research of the New York Zoological Society, whose diligent collecting has added materially to our knowledge of the crane-flies of Venezuela. The fly is quite distinct from the other members of the *plagiatus* group that have the basal dististyle of the male hypopygium of somewhat the same structure and appearance. These include *Molophilus* (*Molophilus*) *brownianus* Alexander, *M. (M.) capricornis* Alexander, *M. (M.) compactus*, sp. n., *M. (M.) luxuriosus* Alexander, *M. (M.) paganus* Alexander, and some others, all differing among themselves in the pattern of the wings, length and structure of the antennae, and in the details of structure of the male hypopygium.

The tropical American species of *Molophilus* have been listed by the writer in another report (*Rev. de Entomologia*, 18: 338-353, figs. 19-28; 1947).

*Styringomyia* Loew.

74. *Styringomyia americana* Alexander, 1914.

*Styringomyia americana* Alexander;  
*Trans. Amer. Ent. Soc.*, 40: 231; 1914.

Rancho Grande, July 10, 1946. The type was taken at Mallali, British Guiana, on March 8, 1913, by Parish. This is the most widely distributed of the American species of the genus, occurring in British Honduras, Costa Rica, Colombia, Venezuela, British Guiana, Surinam and Ecuador.

The tropical American species of *Styringomyia* have been discussed in an earlier paper by the writer (*Rev. de Entomologia*, 18: 354-356, fig. 29; 1947).

*Toxorhina* Loew.

75. *Toxorhina* (*Toxorhina*) *pergracilis* Alexander, 1944.

*Toxorhina* (*Toxorhina*) *pergracilis* Alexander; *Ann. Mag. Nat. Hist.*, (11) 11: 181-182, fig. 13; 1944.

Rancho Grande, June 28, July 10-27, August 1, 1946. The type was from Ayna, La Mar, Ayacucho, Peru, 2400 meters, collected April 27, 1941, by Woytkowski. Known only from Peru and Venezuela.

76. *Toxorhina* (*Toxorhina*) *stenophallus* Alexander, 1937.

*Toxorhina* (*Toxorhina*) *stenophallus* Alexander; *Ann. Mag. Nat. Hist.*, (10) 20: 503-504; 1937.

Rancho Grande, August 27, 1944, collected by Lichy. The type was from Nova Teutonia, southeastern Brazil, taken September 30, 1935, by Plaumann. Still known only from Venezuela and Brazil.

The tropical American species of *Toxorhina* have been considered by the writer in an earlier report (*Rev. de Entomologia*, 18: 356-360, figs. 30-32; 1947).